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AGRICULTURAL RESEARCH INSTITUTE
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TRANSACTIONS

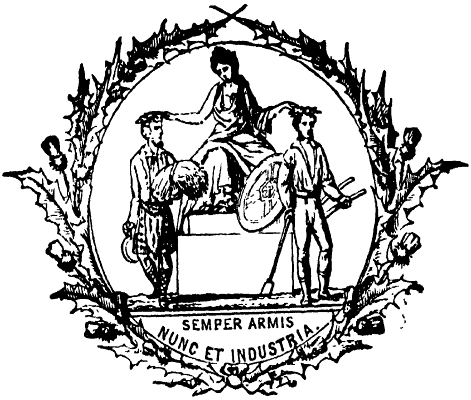
OF

THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND

WITH

AN ABSTRACT OF THE PROCEEDINGS AT BOARD AND GENERAL
MEETINGS, AND THE PREMIUMS OFFERED BY
THE SOCIETY IN 1929

PUBLISHED ANNUALLY



FIFTH SERIES

VOL. XLI.

EDITED BY JOHN STIRTON, SECRETARY TO THE SOCIETY

EDINBURGH:
WILLIAM BLACKWOOD & SONS LTD., 45 GEORGE STREET
AND 37 PATERNOSTER ROW, LONDON
1929

WORKS ON AGRICULTURE, &c.

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TRANSACTIONS

OF

THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND

THE AGRICULTURAL REVOLUTION IN SCOTLAND, 1750-1810.

By Professor J. A. SCOTT WATSON, University of Oxford.

The story of Scotland during the latter half of the eighteenth century is a record of notable progress in nearly every department of the national life. The Union of 1707 had found the country in a deplorable state. There were no industries of any consequence apart from agriculture and fishing; the only important exports were in such commodities as wool, hides, store cattle, and salt fish. The great Darien scheme, which was to have laid the foundations of the country's overseas trade, had ended, a few years before, in dismal fiasco. The bulk of the people, in town and country alike, were miserably poor—ill-fed even in good years, ill-clad, and housed in dark and damp and rickety hovels. 'King William's years,' when many folk had died of famine, were still fresh in men's minds. In theory there was provision for the education of all classes, yet the great majority of Scotsmen could neither read nor write, and even among the educated classes science and learning were at a low ebb.

The Union, when it came, seemed to have brought little but disappointment. Taxation increased—the new salt tax, in particular, went far to ruin the fishing industry, and the trading privileges that were granted under the treaty proved of little use to a country that had neither the skill to build nor the money to buy ocean-going ships. During the forty years that followed there were spasmodic and half-hearted attempts at progress, but nothing really prospered. The linen industry made a little headway, but coal mining, wool manufacture, and the iron industry remained in a feeble and struggling condition. It was not till after Culloden that the nation began, feebly at first but with gradually increasing confidence and energy, to work out its economic salvation. By the end of the century there were flourishing manufactures of linen, wool, and cotton; coal mining was a large and growing industry, and Carron Iron Works were the biggest in the world. In science, learning, and philosophy the country occupied a prominent place.

Not the least remarkable of Scotland's achievements during this time was the complete revolution of her farming. At the Union it could be truly said that Scottish agriculture was centuries behind that of England. The land lay all unfenced, sour and ill-drained, starved, and foul with weeds. The crops gave miserable returns. The live stock was unimproved, ill-fed in summer, and more than half-starved in winter. The tenants were men of little capital and less skill. To the southern traveller it seemed that the whole farming community was sunk in hopeless poverty, sloth, and ignorance. No substantial progress had been made by 1750; here and there, in East Lothian especially, enlightened landlords were experimenting with the 'new husbandry'; but the bulk of the country was quite untouched. Sixty years later, although the old methods still lingered in remote Highland glens and in the Western Isles, the general aspect of the countryside had been transformed, and Scottish agriculture led the world.

THE OLD HUSBANDRY.

In order to make clear the nature and extent of the change, it is necessary to begin with some account of farming methods as they existed at the opening of the century. The common statement that the land was at this time all in run-rig is not true for all districts. In the Highlands and Hebrides the run-rig system, in practically its original form, still prevailed. Each farm, or rather each township, was let to a group of tenants in common. The arable infield was divided into a large number of small strips, which were redistributed by ballot at specified times, commonly every third year. A number of tenants, normally four, joined together to provide man-power and work animals for a plough. The infield and any cropped portions of outfield were regarded as common grazing during the winter season, and the rest of the land was common throughout the year. In theory, and very often in practice, the grazing rights of each tenant were strictly apportioned to the size of his arable holding.

In most Lowland counties it was still very common for a farm to be let to a number of joint tenants, many of whom had too little land to employ a plough of their own. But the arable strips had ceased to change hands at stated intervals, and there had been, in certain cases, consolidation of the strips into more or less compact blocks. Moreover, there were some farms let to single tenants and worked with hired labour. Even at this time East Lothian was a county of comparatively large farms running to two or three ploughs each. Indeed it is doubtful if there were many run-rig tenures left. In Berwickshire, on the other hand, run-rig was very common.

Farms were universally divided into 'infield,' which was kept under constant tillage, and 'outfield,' which was ploughed and rested alternately. In addition, many farms had grazing rights over adjacent hill or moorland. The crops were not very numerous. In the northern half of the country oats and bere, with small areas of peas, and sometimes a little flax, or rye, or beans, made up the list. In the south peas were an important crop, and the area of beans was more considerable; the two crops were often grown in mixture. Some two-rowed barley was grown, but it was nowhere so important as bere. Some wheat was cultivated, as it had been for centuries, in fertile districts like the Merse and the Lothians, the East Neuk of Fife, and the Carse of Gowrie. On the infield land rotations of a kind seem to have been rather strictly followed. In Buchan two years oats and one year bere was the universal scheme; in Perthshire and in Easter Ross the custom was to grow oats and bere alternately, varying this only to the extent of taking a very occasional crop of peas or lint. On the good land in the Lothians the rotation was (1) wheat, (2) barley, (3) oats, and (4) peas; on the poorer and higher grounds the wheat was omitted.

On the outfield land the only crop was oats, and in many of the northern and western counties it was the old 'sma'' oat (*Avena strigosa*) that was grown. After a piece of outfield ground had been broken up a number of crops—from two to seven—was taken, and the land was then abandoned for an indefinite period to lea, which, of course, consisted of natural grass and weeds. When this land had gathered a good natural sward, "when the red moss appeared on the surface and the moles came back," it was judged fit to be broken up for oats again. Meanwhile, another portion of the outfield was under cultivation.

The infield land had all the available dung, which was normally applied in the spring, in preparation for bere. Since little stock was kept, and that mainly fed on straw, the dung was neither abundant nor good, and all kinds of materials were scraped together to eke it out—peat or coal ashes, peat-moss itself, old thatch from the buildings, and often divots cut from the outfield. In coastal districts sea-weed was greatly prized and largely used as a manure. Lime also was used where it was available locally; but since there were almost no roads fit to carry wheeled traffic, it could not be carried far from the source. The outfield land was never dunged, but often the piece that was due to be broken up was 'tathed' for a season—*i.e.*, it was surrounded with a turf dyke, and the live stock was folded upon it during the summer nights.

As regards weed control, the outfield land was sometimes given a partial fallow when it was brought in. Infield was never fallowed, and the only serious attempt to clean it was during its preparation for bere, when usually it had three ploughings. The last ploughing was delayed until very late in the season, in order that weed seeds might have germinated before it was done; 'bere seed-time' was hence very late, often lasting till the end of May or even the beginning of June.

Drainage was assisted by laying up the soil in steep and narrow ridges, which were usually (it is hard to say just why) crooked like a letter S. That the general level of production was not high will be readily believed. 'The fourth seed' was reckoned a good yield even on the better infield land, and few whole farms gave, one year with another, more than a threefold return—"Ane to saw and ane to knaw and ane to pay the laird witha'," as the old proverb had it. Outfield land was deliberately cropped to exhaustion—*i.e.*, until the yield would no longer pay for seed and labour.

A feature of the old system was the extraordinary numbers of work animals that were maintained. In many districts there were six or eight oxen to each plough, with horses for road work and other operations. Rossie Island, in the mouth of the South Esk, by Montrose, consisting of about sixty-three acres (Statute), of which twenty-three were infield, "had always been laboured by six oxen and four horses." The following account of the organisation of the farm work in the old days is fairly typical; it was written by a farmer in the Carse of Gowrie, and applies to the period about 1760, but would apply equally to much earlier times: "At that period the braes of the carse were for the most part ploughed by oxen ploughs, of eight oxen yoked pair and pair. There were very few horses used in ploughing; they were employed in the winter in carrying grain to market in sacks upon their backs and in the spring-time in harrowing in the seed, and in bear seed-time were yoked in the plough along with the oxen, two horses and four oxen in each plough. The farming in the low carse, or clay or strong lands, was carried on by the work of horses and oxen jointly. The plough in the go-harvest (autumn) and winter was drawn by two horses and six oxen, sometimes by four horses and two oxen. The horses carried all the grain sold to the borough towns, and to the harbours on the Tay, upon their backs in sacks of a boll each; the horses all driven in a trip, tied halter to tail, all passing in a line along the centre of the deep clay road; the drivers following along the edge of the road the best way they could, and now and then, as a sack seemed likely to lose its balance, running to prevent its fall, wading through the deep clay up to their knees; and by the time the men and horses had finished their job they were all covered over with clay. There were few wheeled carriages used even in the summer, except a few carts carrying in coal for winter use, in the time of drought, when the roads were hard and dry. The corns were carried off the fields into the stackyards, and the dung carried out at bear seed-time by wains—carriages something similar to the hay and dung-carts at present in use, but drawn by a pole to which were yoked two oxen, and in front of the oxen two horses abreast by swingle-trees." The plough teams varied a good deal from one district to another. On light land in the south teams of four horses might have been found. On the other hand, in the north, ten and even twelve oxen were often yoked to a single plough. It must, of course, be remembered that the cattle were small and ill-fed. A bullock of seven cwt. or a horse of fifteen hands would have been reckoned large.

In the better arable districts live stock, other than the work animals, were not very numerous. Every farm had its small flock of sheep, the wool from which was spun by the women-folk and woven into cloth by local weavers. The ewes were milked for some six weeks after weaning-time, the milk being made into cheese. A few cows were kept, and butter was made in summer; but if we can believe English travellers, the quality of it left a good deal to be desired. John Ray wondered "how they could contrive to make it so bad." The bullocks that were reared were ordinarily broken to draft at three years old, continued to work until they were seven or eight, and were then fattened for slaughter. In most Lowland counties there were a few pigs, in the Highlands almost none, for the Highlanders regarded pork with aversion. In the southern uplands there were large flocks of sheep, both of the 'Linton' or Blackface and the 'Long' or Cheviot breeds; in Galloway a great number of store cattle were bred for the English market. Everywhere there were plenty of hens, and the big flocks of pigeons from the laird's 'doo-cot' were a perennial affliction to his tenants.

In the Highlands the chief stock was cattle, and great droves were brought south in the autumn for sale at Falkirk and the other large trysts. In some districts a considerable part of the rent was paid in butter, which was so bad that much of it was used up for the autumn smearing of the south country sheep, being mixed with tar for this purpose. The Highland sheep were of the little, old, soft-wooled breed, which were not hardy enough to fend for themselves on the mountain, and were closely herded and often housed in winter. In many Highland districts goats seem to have been more numerous than sheep.

The live stock, in an unfenced country, took a great deal of herding. MacIntosh, arguing in 1729 for enclosures, estimated that in the average Scottish parish fifty people, mostly children, were employed as herds during summer. Even so, law cases about stray animals and eaten corn are among the commonest in the records of the old Baron Courts. In the low country, where pasturage was often scarce, it was common for the plough cattle to be sent away, after bere seedtime, to moorland or hill grazings, where they remained till after harvest. In the Highlands a good part of the population of each township, with the live stock, migrated in June to the summer shielings, where they remained till autumn.

Our sketch would be incomplete without reference to some of the hardships under which the tenants laboured by reason of the nature of their tenure. Long leases were very rare; in some cases they were for five years, but in most districts yearly tenancies were the normal arrangement, and since there was no compensation for improvements, there was little inducement to improve. Secondly, there were many irksome services due by the tenant to his laird—the winning of peat and its carriage to the laird's dwelling; ploughing, shearing in harvest, and the leading in of corn and hay; upkeep of the mill-dam and lade, and the bringing home of new millstones when required; long carriages with corn to market, or for lime or coals. Worst of all, or at least the cause of the most bitter complaints, was thirlage. Most of the land was bound to send its grindable corn to a particular mill, paying to the owner or tenant of the mill a multure, which varied from the ninth to the twenty-fifth corn. Sometimes there was a 'knaveship' in addition, payable to the miller's man. The multure was exacted whether or not the corn was actually ground at the mill, and sometimes the service was so bad that the farmer preferred to pay the multure and send his corn elsewhere. In some cases the mill had ceased to exist, when a modified tax, known as dry multure, was paid. In any event the receiver of the multure was a sleeping partner in the farming industry, taking his unearned share of any increase in the output of the land.

Despite all the faults of the old system, there were certain features of the situation that were favourable to the coming revolution. Although there was a great deal of run-rig, many of the townships were owned by single proprietors, and even where there were a number of owners or feuars, that number was usually far smaller than the number of owners or copyholders in an English manor. Also, although there were a good many common grazings, the number of actual owners of common rights was generally small. Such exchange and redistribution of land as was necessary to the creation of compact farms could be carried out by private arrangement, by arbitration, or by a simple process at law. There was no need to resort to the expensive plan of a private Act of Parliament, such as was generally necessary for the enclosure of an English manor. Moreover, the Scottish township was often of a convenient size—two or three hundred acres—for conversion into a modern commercial farm.[1] Generally it was an easy, if sometimes a ruthless, thing to turn out a group of small and poor tenants to make way for a capitalist farmer and the new husbandry. Finally there were no fences to tear up, and almost no buildings that were worth preserving. The new man, when he came, could proceed to lay out his farm almost as if the land had been open prairie.

1720-1750—The Pioneers.

The first stimulus to change was provided by the example of England. After the Union there was a great deal more coming and going between the two kingdoms, and Scotsmen who went south could not help being impressed by the efficiency of English farming and the prosperity of the English farming classes. At this time about half the land of England had been enclosed, and it was notorious that the enclosed farms were more productive and more profitable than the open-field lands. Hence the early writers were never tired of advocating enclosures. As early as 1699 Lord Belhaven had suggested to the farmers of East Lothian that it would be well worth while to "rickle up a dry stone dyke" round a piece of ground, in order that they might have a convenient pasture for their cows and work animals. In 1729 MacIntosh propounded a scheme for enclosing the whole of Scotland by Act of Parliament—" and that in sixteen years at farthest." Some few enclosures were, in fact, made by the wealthier landlords, and Cockburn of Ormiston, in East Lothian, set an example by letting all his farms on leases for three lives, on the condition, among others, that the land should be enclosed; by 1733 the work was already finished. But very few followed his lead, and costly improvements like planting hedges or building stone walls could not be expected until there was some security of tenure. Another thing that struck the Scottish traveller was that the arable land in England was comparatively clean. This condition was clearly dependent on the English practice of fallowing as a matter of routine, and hence the early improvers were strong advocates of fallows. But the ordinary farmer was quite unconvinced: "Who pays the rent the year that the land lies idle?" was his answer. In vain it was argued that two crops of clean corn were better than three of weeds; the farmer lived from hand to mouth, and he could not afford to increase the ever-present risk of finding himself with an empty meal-kist. The third general method of improvement that was strongly canvassed was the planting of woods and shelter belts. All kinds of advantages, probable and improbable, were to result—the climate would be improved out of recognition, so that crops would be earlier and better; the shaking of corn would be prevented; much-needed timber would be produced, and so on. But it was objected that land could not be spared for timber, that already there was too little available for corn and pasture. And indeed the early planters made the mistake of supposing that good land was needed for trees. The discovery that they could be successfully grown on land that was nearly worthless for farming did not come till later. Further, it was feared that woods would harbour destructive birds, and would prevent the drying of corn in harvest. So strong was the prejudice, that improving landlords had often to invoke the law against fence breakers and cutters of green wood. The other important step suggested by the early improvers was the introduction of the new crops which were then bringing about a revolution in the farming of East Anglia—turnips, clover, rye-grass, and even lucerne and sainfoin. A great number of experiments were made, mostly with very satisfactory results. But this idea appealed to the plain farmer perhaps less than the others. The country was living very near the verge of starvation, and it was a pretty solution of the problem to suggest that farmers should make room for 'beast's meat' at the expense of 'man's meat.' The answer that turnips could, in years of scarcity, be used as human food was not very convincing. Moreover, it is true that there was still at this time a very small market for meat and dairy produce in Scotland, and until urban industry grew, and the spending power of the masses increased, there was no obvious direct advantage to be gained by turning from grain farming to mixed husbandry. The indirect benefits of keeping more stock—higher fertility and better crops—were too remote to make a strong appeal.

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[1] This statement does not apply to the south-eastern district; in Berwick and Roxburgh especially there were large agricultural villages with big areas of land attached to them.

In 1723 there was formed the "Society of Improvers in the Knowledge of Agriculture in Scotland," with a great number of landed gentry, judges, lawyers, doctors, and other distinguished people as members. Farming suddenly became a fashion; it was no longer a subject beneath the notice of gentlemen—no longer unworthy of the attention of men of intellect. Among the new ideas that the Society discussed and helped to disseminate were those that Jethro Tull published in his 'New Horse-Houghing Husbandry' in 1731. It is, of course, true that Tull was mistaken in one of his fundamental ideas: he thought that plants obtained nutriment from the soil in the form of small solid particles. Hence he argued that the chief measure necessary to maintain the fertility of the soil was very thorough tillage or pulverisation. Manures like dung and lime were only imperfect substitutes or tillage, and should not be necessary where the soil was adequately worked. The practical conclusion was that crops should be drilled, with spaces between the rows wide enough to admit of cultivation during the earlier part at least of the growing season. These views had a better reception in Scotland than in England, and it seems to have been soon realised that Tull's horse-hoeing system could be most successfully applied in the cultivation of the new crops, turnips and potatoes. At all events the cultivation of these crops "in the horse-hoeing way" was advocated as a notable improvement.

Many of the members of the Society set out to demonstrate, on their own farms, the benefits of enclosing and fallowing, and the value of turnips and sown grasses. The drainage of mosses and the reclamation of moorlands by paring and burning, liming, &c., were other questions to which they gave attention. Unfortunately few of the 'improvers' were professional farmers, and their enthusiasm was sometimes greater than their skill; we may be sure that their mistakes did not pass unnoticed. Moreover, it was easy to belittle their achievements as those of wealthy amateurs, working without regard to costs or profits. Even when the tenant-farmer was fully persuaded of the advantages of the new system, its adoption was often quite beyond his resources. Some of the old writers calculate that a capital equal to a single year's rent of the land was enough to run a farm on the old system, whereas the new husbandry required the investment of four or five times that sum. Before there could be widespread change, capital had to be accumulated by long-continued saving on the part of the tenants, or else attracted to the industry from other sources.

1750-1810—Economic Progress of Scotland.

After Culloden, and especially after the accession of George III. in 1760, Scotland settled down to a period of tranquillity such as she had not enjoyed for centuries. The Highlands were opened up by means of the new military roads. The old heritable jurisdictions, which had made every chief almost the absolute monarch of his own territory, were abolished. Law and order were established, and the country began to be civilised. Jacobite sentiment declined, and the old religious animosities began to die out. Men were at last able to go about their daily tasks free from the distractions of civil war and religious persecution, and in the new atmosphere of security the arts of peace began to flourish. Overseas trade, especially that with the American colonies, made rapid strides. Manufactures began to drift away from country villages and farm kitchens to the new factories. It was the beginning of the Industrial Revolution, which brought with it the problems of rural depopulation and the growth of the towns. Between 1750 and 1810 the population of the country as a whole rose from 1,200,000 to 1,800,000, while that of Glasgow increased from 19,000 to 114,000, and that of Dundee from 9000 to 30,000. These changes led to an increase in the demand for food and other raw materials, and to a great development of the trade in farm produce. The supply of ready money became far greater, and there was an expansion of credit due to the establishment of banks. The result was a very marked and progressive rise in prices, as the following figures show:—

Fiars Prices (for second quality grain) at Haddington.
(Ten years averages.)

	Wheat.	Barley.	Oats.
1741-1750	23/9	12/11	11/2
1751-1760	28/8	15/3	13/7
1761-1770	35/6	19/1	16/5
1771-1780	37/5	19/10	16/4
1781-1790	41/5	22/9	18/-
1791-1800	68/5	33/1	25/-
1801-1810	71/9	37/8	28/6

Of course a high level of prices does not in itself ensure a prosperous condition of agriculture. But in this period, as in others of rising prices, the level of rents and wages lagged behind that of corn and live stock prices, so that the tenant-farmer made handsome profits. Of old, farming had been carried on by men of small capital, who looked to their land to provide them with little more than the bare necessities of life. The farmer was content if he could live a little better, and enjoy a measure of security a little greater, than that of a common labourer. Now it began to be realised that farming offered the probability of a handsome return on capital, and capital began to be invested in the industry in steadily increasing amounts. The aim of the old-fashioned farmer was a full meal-kist; that of the new man was 10 per cent. It is true that the tide of prosperity did not flow evenly during the whole sixty years. There was a sharp interruption caused by the American War, when many merchants broke, factories were thrown idle, and prices fell. 1778 and 1779 especially were years of severe depression, and the peace of 1782 coincided with one of the worst harvests on record. The spring was extraordinarily late, and in the high country frost set in by the end of July or the beginning of August, when the corn had scarcely begun to fill. The earliest Lowland districts escaped the worst of the damage, and with grain at famine prices the farmers made profits. But in the north there was not enough bere and oatmeal to go round, and many families had to subsist on scanty allowances of beans and peas supplied by Government or by the charity of the wealthier classes. Many of the small tenants in Aberdeen, Banffshire, and Ross had to sell the greater part of their live stock in order to buy bread-corn and seed; some were ruined and abandoned their farms, while most needed several years to recover. In many parishes the best report that could be made was that none had died of want. But prosperity returned, and after the set-back the work of improvement was carried on with redoubled vigour.

THE POTATO.

The first innovation in many parts of Scotland was the field culture of potatoes. Apart from the fact that the crop was well adapted to the drill system of cultivation, its introduction had nothing to do with the main revolution. Potato culture did not necessitate enclosing, liming, or any other special improvement. Indeed it was in the Hebrides, where other changes came very late, that the crop made most rapid progress. Field culture is said to have been first carried on by Robert Graham in Kilsyth parish in 1739, and four years later it was introduced into the Western Isles. For several years potatoes were looked upon with great suspicion, yet by the end of the century they constituted at least two-thirds of the food of the islanders; and there is no doubt that the increase in the cultivation of the crop made possible the great increase in the Hebridean population. In the Lowlands commercial potato cultivation was restricted, up till 1810 and later, to the neighbourhood of towns and villages, and even there it was usually carried on by the hand labour of the townspeople, on land let to them by suburban farmers. Large-scale cultivation in country districts had to await the development of transport facilities, especially of railways. Nevertheless the small-scale cultivation all over the country, which began about 1760, produced in the aggregate a large quantity of food for the country population, and set free an appreciable amount of sorely needed grain for the towns. In the early writings about the potato crop there are many instances of keen observation on the part of growers. It was very early discovered that lime was unfavourable to the growth of the crop, one of its injurious effects being to produce scab. The curl (leaf roll) became very prevalent about 1800, and it was pretty generally agreed that the best ways of keeping it in check were to obtain seed from the later and colder districts, and to lift seed crops before they had attained maturity. Besides their use as human food, potatoes were largely used for feeding to all classes of stock, and one particular sort, the Yam or Surinam variety, was grown solely for stock food.

TURNIPS AND SOWN GRASSES.

Progress with the other new crops was necessarily much slower. The cultivation of sown grasses and turnips was not worth while until the land was enclosed, and in some cases limed, drained, and fallowed as well. These improvements could not go forward without the security of long leases; and with prices and rents steadily tending upwards, landlords were often disinclined to grant these. In many districts the fashion of letting land on long lease did not come in until the depression of 1776-82, when special inducements were necessary to secure good tenants. Moreover, the real value of the turnip crop was for the winter fattening of stock, and the only considerable market was for stores to go to England. As late as 1780 there were many small towns without a single butcher's shop, and even in the cities the consumption of meat was on a very small scale. Turnip cultivation first became general in the Border district, and by 1760 there were one or two big stock-farmers who grew as much as a hundred acres. In the Lothians, turnips did not become a general rotation crop until after 1770;

in Aberdeenshire, it is said, scarcely two hundred acres were grown altogether, until after the disastrous harvest of 1782. Thereafter a good many of the small native farmers were displaced by substantial tenants from the south of Scotland, and the turnip husbandry, along with other improvements, made rapid strides. In the west, especially in the heavy land districts, root-growing did not progress so rapidly, though the spirit of improvement was no less keen there than in the east and north. In the early experimental period a good many turnips were sown broadcast, and cultivated entirely by hand hoeing; but drilling on raised ridges was found to be the only practical scheme of large-scale culture, and soon became general. At first the ridges were made three or four feet wide, as had been advocated by Tull, but as experience was gained, and implements were improved, it was found desirable to reduce the distance to twenty-seven or thirty inches. The old practice was to sow the crop much later than is now usual. Few writers before 1810 recommend a date earlier than the middle of June, and July is mentioned by many. In this respect Scottish farmers seem to have been guided by the experience of Norfolk, which was in favour of late sowing, but it also seems that the old varieties of turnips were liable to bolt if sown as soon as May. All this applies only to common turnips. Swedes were not introduced until after 1790, and although their value for spring feeding was soon recognised, the acreage grown was not considerable until after the period we are discussing.

The earliest experiments with temporary pastures and hay were made with red clover, lucerne, and sainfoin. The last was very soon dropped as unsatisfactory. One or two enthusiasts like Lord Stair persisted for many years with lucerne, and had some measure of success, but the crop can hardly be said to have got beyond the experimental stage, and is barely mentioned by the county reports written about 1810. Red clover was greatly appreciated where it fully succeeded, but (probably owing to lack of lime in the soils) it very often failed. By 1750 mixtures of ryegrass and two or three species of clover were being tried, and twenty years later the following was a common prescription :—

Ryegrass (Perennial)	2 bushels.
Red Clover	10 lb.
White Clover	4 lb.
Trefoil	3 lb.
Ribgrass	4 lb.

Most of the writers up till 1810 give mixtures of the same type, rarely mentioning any but the five species, and only varying the proportions of these according to the time that the grass was intended to lie and the use to which it was intended to be put. In the west, timothy meadows are mentioned as early as 1801, but the use of the other 'natural' grasses did not become general until far on in the nineteenth century.

DRAINAGE, ENCLOSING, AND LIMING.

Concurrently with the introduction of the new crops, other improvements went on apace. The ordinary procedure was to enclose by means of hedge and ditch. Quicksets of common whitethorn were preferred wherever it was supposed that they would grow, and indeed these were planted in many of the upland districts where, as it proved, they never made satisfactory fences. Where the conditions were not good enough for thorns, whins were sometimes planted, and latterly dry-stone dykes were built. If the enclosures were not over large, and if the soil was of an open character, the boundary ditches themselves provided fairly adequate drainage. If the case were otherwise, covered drains were made, dug about three feet deep and filled, to within a foot of the top, with small land stones. In many cases the making of these drains served a double purpose, for they provided a means of disposing of the great masses of stones that had been gathered off the land by previous generations, and dumped on the balks that separated the strips of infield. Where the supply of stones was insufficient, bundles of thorns, whins, or heather were packed into the drains, for tiles were not yet available. Only in the larger drains was any attempt made to build a culvert. When some system of drainage had been completed it was possible to level the old steep and crooked ridges, either leaving the surface flat or making new broad and low ridges; only this had to be done by easy stages, otherwise great strips of raw unweathered subsoil were exposed and the fields took years to regain fertility.

In the 'eighties and 'nineties great improvements were made in the roads in most districts. Of old the roads had been maintained, after a fashion, by means of statute labour, each plough-gate of land (or sometimes every able-bodied man) being required to supply a given number of days' work in the year. But this method was unsatisfactory, so that one district after another adopted the plan of commuting the statute labour for a money payment, which was used to pay a permanent staff of road workers. Also a great number of Turnpike Acts were passed empowering special bodies to borrow money for constructing trunk roads, and to levy tolls for maintenance and sinking fund purposes. The provision of roads that could carry wheeled traffic in winter was a great boon from many points of view. It greatly lessened the labour of marketing grain. It enabled coal to be carried to many districts which had formerly been forced to rely on peat, and in which the farmers had spent as much as half the summer in ensuring their fuel supply. Not least, it brought supplies of lime within the reach of many districts where liming was an essential part of any scheme of improvement. Lime was still the only 'artificial manure' available, and it was used in repeated dressings of three or four tons per acre. Where quick-lime was still out of reach a diligent search was made for substitutes, one of the commonest sources being the deposits of shell marl which were found in many fresh-water lochs, or under layers of peat-moss in places where lochs or swamps had formerly been. Here and there liming and marling seem to have been done to excess, but in the main they effected a vast improvement in the productivity of the land.

Most of these improvements were made by tenant-farmers, with no assistance from the landlord except the security of a long lease. Indeed some tenants undertook not only to drain, enclose, and lime, but also to reclaim moorlands and build houses and steadings. Two or three 'nineteens,' or three lives, or two 'nineteens' and a life, became common arrangements, though often there was a stipulation for periodic increases of rent. Improvement went on faster or slower according to the amount of capital that the tenant could command. The usual procedure was to start simultaneously on pieces of infield and of outfield. The former was fenced, fallowed, limed, and laid away to grass for four or five years. The outfield was also enclosed, limed, dunged, and fallowed, and kept under corn crops for two or perhaps three years; thereafter it was dunged for roots and also laid away to lea. Thus began the modern system of alternate husbandry, which has remained a feature of Scottish farming ever since.

IMPLEMENTS.

Apart from the widespread introduction of carts for road traffic, the latter half of the eighteenth century witnessed several notable improvements in farm implements. Of these the chief were the improvement of the plough by Small and the invention of the threshing-machine by Meikle. Small's plough could not only do better work on ordinary land than the old Scots implement, but it could be drawn by two horses and held and driven by one man. Thus even where relatively advanced methods and good ploughs had been in use before, Small's improvements may be said to have halved the labour, both of man and beast, involved in ploughing; and in the backward districts, where sometimes eight or more cattle and three men formed the old cavalcade that went to plough, the saving was still greater. The value of Meikle's thresher as a labour-saving machine was almost as great, but the old writers insist chiefly on its other advantages. It threshed cleaner than the flail (producing 4 or 5 per cent more corn), and it did less damage in the process; moreover it relieved the farmer from the constant and anxious task of supervising his threshing staff during a great part of the winter. Other improvements in farm equipment were the general introduction of rollers, the improvement of the harrow, and the introduction of turnip-drills and horse-hoes.

LAND RECLAMATION.

Up till about 1790 Great Britain continued to be, on the whole, self-supporting in the matter of food supplies. Continental corn was imported in years of scarcity, but in good seasons there was a considerable surplus for export. From this time onwards there was a steadily widening gap between the agricultural output and the needs of the rapidly growing population, so that imports of corn became a normal feature of the country's trade. During the Napoleonic wars importation was often difficult and sometimes practically impossible, and the difficulty of the situation was aggravated by the occurrence of a run of bad seasons. On more than one occasion the food situation became almost desperate. In 1795 wheat averaged nearly 90s. per quarter; in 1800, and again in 1812, it reached £6; while in the last-mentioned year oats went beyond 50s. Meanwhile there were a great many working men earning less than ten shillings a week.[1]

Under these conditions it became a patriotic duty, and sometimes a promising commercial enterprise, to add to the old cultivated area by reclaiming waste land. Many moors were divided up between their proprietors, were enclosed, broken up, limed, and put under crop. One of the ploughs used for breaking moor is described as requiring two horses and fourteen oxen to draw it, and as turning a furrow nearly two feet deep at the rate of half an acre per day. Sometimes as a preliminary the sod was pared and burnt, labourers who were skilled in the business being occasionally brought from England for the purpose.

Where stones were too numerous and too large for any plough to work, the improver had to fall back on trenching by the spade, gangs of Highlanders being sometimes employed in this work. Many of the smaller mosses were drained and reclaimed, especially where, as was often the case, a substantial amount of the peat had been already removed for fuel. Several pieces of carse land were successfully reclaimed from the Forth, and attempts of a similar kind were made in other of the estuaries, with varying but, on the whole, indifferent success. Perhaps the most interesting of all the reclamation schemes was that of Lord Kames at Blairdrummond Moss above Stirling, where several feet of peat were removed by hand labour and floated off into the Forth through artificial ditches and canals. The scheme resulted in the poisoning of a good many salmon, but it made available a considerable area of rich carse soil that had lain for centuries buried below the moss.

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[1] In 1810 Scottish farm-workers' wages ranged from 7s. 6d. in Caithness to about 14s. in the industrial areas. Normally, however, a large part of the wage was paid in kind, and hence distress among farm labourers was much less acute than it would have been under a cash wage system.

Some of the reclaimed areas are to-day fertile farm lands. Others bear evident traces of their moorland origin, and can never have repaid, in any financial sense, the vast outlays that were made upon them.

LIVE STOCK.

As in many other matters, Scotland was deeply indebted to her southern neighbour in the matter of live stock improvement. The great droving trade, which began early in the seventeenth century and continued well into the nineteenth, was, of course, essentially concerned with the transference of store cattle from the breeding districts in the north, west, and south-west of Scotland to the feeding farms in Norfolk and the neighbouring counties. Galloways and Kyloes were the breeds most largely represented, but other droves consisted of the old Aberdeenshire, the Angus, and the Fifeshire breeds. The trade had the effect of making Scottish cattlemen familiar with English breeds of stock; but there is no sure evidence as to when the small but important reverse trade in selected breeding animals began. We know that between 1715 and 1720, Paterson of Lochlyoch imported his famous black horse that had so much to do with the formation of the Clydesdale breed, and it is highly probable that other English horses reached Lanarkshire both before and after that time. About the middle of the eighteenth century 'Stranger' cattle, probably both Teeswaters and Alderneys, were introduced into Ayrshire, and played an important part in the origin of the Ayrshire breed. Lincoln sheep are said to have been brought to the Border district, with the object of improving the local breed, about 1760. By 1775 the importation of English stock was going on rapidly. In the east, as far up-country as Kincardineshire, English cattle were widely distributed, and the respective merits of the Lancashire (long-horned), Holderness, and Teeswater (short-horned), and the various native breeds provided plenty of matter for discussion. The Lancashire breed was admitted to be large and strong, well fitted for the plough, and thickly fleshed when fat. But they were poor milkers, thick skinned, and slow to fatten. The Teeswaters were more generally esteemed, both for beef and for milk, but they required better keep than the poorer class of farms could provide. By this time, too, the improved Leicester was becoming well established in Berwickshire, and it was soon to become, for a time, the standard commercial breed for low ground farms in the Borders. Bakewell's Leicester was the only English breed that had been adopted, in its pure form, by 1810; the invasion of the north by the improved Shorthorn was a later story. For the most part, indeed, the native breeds were retained, the breeders relying upon selection, with a smaller or greater infusion of English blood, for making the desired improvement in type. The process was well begun by 1810, but a great deal still remained for succeeding generations to accomplish.

Apart from the general grading up of its stock, the country initiated several other great changes in the character of its animal husbandry during the period under review. In the south-west the dairy industry began to make progress, and, in keeping with the changed conditions, Ayrshire cattle spread at the expense of Galloways. About 1790 the dairy breed invaded Carrick and Dumfriesshire, and in 1792 the first herd was established in Wigtown. In the eastern arable districts, on the other hand, farmers began to exploit the growing home demand for beef, and not only ceased to breed stores for the English market, but took to buying and fattening a considerable proportion of the Highland stores that had formerly gone south. In many of these districts, too, the little flocks of sheep disappeared, largely because the native type was 'unfriendly to the new enclosures.' In many of the descriptions of Fifeshire and Angus parishes published in the old 'Statistical Account,' the authors remark that not a single sheep survived. In the Highlands, as is well known, the agricultural revolution took the form of substituting large scale commercial sheep farming for the old order of subsistence farming with cattle as the main rent-paying commodity. Southern sheep farmers, with their Blackface sheep, began to cross the Highland line, mostly in Dumbartonshire, before 1760, and the system slowly spread to the north. By 1790 the change was almost complete in Cowal, Lorne, and Perthshire, and had made considerable progress in Inverness and Mull. At this time the Eastern Grampians were mostly considered unfit to carry breeding ewes, and were stocked mainly with Blackface wethers bought in West Linton Market from south country grazings, and kept in the north for two years. The first sheep farmer is said to have settled in Ross-shire in 1782, but it was not until about the end of the century that he had many followers. The introduction of Cheviot sheep into their second home in Caithness and Sutherland began still later, about 1806. That sheep-farming was still very far from having attained its full development in 1810 is clear from the statistics given below.

SCOTTISH AGRICULTURE IN 1810.

The position at which Scottish farming had arrived at the end of the period we have reviewed may perhaps best be illustrated by a comparison of the acreage and live-stock statistics of that time with those of the present day. The first set of figures are those given in Sir John Sinclair's 'General Report on the Agricultural State of Scotland,' published in 1814.

ACREAGE AND LIVE STOCK STATISTICS, 1814 AND 1928.

	ACRES.	
	1814.	1928.
Crops and Grass	5,010,450	4,665,464
Wheat	140,095	58,227
Barley and Bere	280,193	111,924
Oats	1,260,352	878,436
Rye	500	3,131
Beans and Peas	118,000	3,497
Potatoes	80,000	114,026
Turnips and Swedes	407,125	378,003
Flax	16,500	3
Bare Fallow	218,950	5,799
Permanent and Temporary Pastures	2,489,725	3,039,301
	HEAD.	
Horses	243,489	165,738
Cattle	1,047,142	1,213,848
Sheep	2,850,867	7,578,704
Pigs	500,000	195,504

Roughly, there was 50 per cent more land under the plough then as compared with now, and the large acreages of wheat, barley, pulse crops, and bare fallow are conspicuous features of the first set of figures. But the proportion between green crops and fallow, on the one hand, and 'white crops,' on the other, is not notably different; that is to say, the modern type of rotation had already become established by the earlier date.

This is not an appropriate place to discuss fully the social and economic consequences of the agricultural revolution. Briefly, it cannot be denied that by 1810 the country population was vastly better off, in a material sense, than in 1750. Everybody, of whatever class, was better fed, better clad, better housed, and better educated. On the other side of the account we must set down a loss of status and, in a sense, of independence by many country families. The big landowners added to their estates at the expense of the 'bonnet lairds,' and many of the smaller tenants, who lacked either the capital or the enterprise to keep abreast of the times, were faced with the option of becoming agricultural labourers or of migrating to the towns. It is no complete answer to say that the wage-earner of 1810, whether town or country, was more prosperous than the small tenant of 1750. In the Lowlands the displaced families were, on the whole, readily absorbed into other occupations; but in the Highlands the social problem was much more acute, sometimes resolving itself into a choice between emigration and starvation.

The years about 1810 saw agricultural improvements going forward at an unprecedented speed. Farmers appeared to be amassing great fortunes, and money was being poured back into the land on a vast scale. Interest in agriculture ran high among all classes, for everybody was deeply concerned about the country's daily bread. There was an outpouring of agricultural literature such as has not been equalled before or since. Rents rose to unheard-of levels: good farms, even in outlying districts, were letting at three or four pounds per acre, and rents of eight and even ten pounds were not unknown for land near to the towns. But the wave of prosperity, like that of more recent years, was followed by a deep trough of depression. Peace, with free imports, a deflated currency, and a heavy national debt, brought about a rapid fall in prices, which crippled many and ruined some of the more speculative farmers. Real prosperity did not return for a good many years. Nevertheless Scotland had established, and was able to maintain, an agricultural industry of which she could be proud.

SOME PROBLEMS IN FARM MANAGEMENT.

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During the past fifty years an increasing amount of attention has been devoted to improved methods of manuring and of feeding, to the formation and maintenance of better pastures, to the prevention and cure of both plant and animal diseases, to the use of labour-saving machinery, to more rational methods of selling and buying, and so on; but only quite recently was the systematic study of the problems of farm management as a whole commenced in this country. In this article it is proposed, first of all, to discuss the point of view that is necessary if farm management problems are to be seen in the proper perspective and attacked with the best chance of success, after which reference will be made to some of the outstanding problems which the farm manager of to-day is called upon to solve. Much of what follows will be more or less contentious, not to say provocative; but there should be at least common agreement that this is no time for nice platitudes and easy generalisations, that farmers almost the world over are faced with problems which are beyond all measure more complex than those of a hundred years ago.

The Objective in Farm Management.

At the very outset we must arrive at some understanding as to the objective towards which the farmer is ever striving. There are many who profess to answer this question on his behalf, but, left to himself, is there any doubt that the *bona fide* farmer—that is, the man whose farm is his business—would answer it without hesitation by saying that his main, though not his only, object is to obtain the largest possible net financial return or profit from his farm? The real problem of the farm manager is not how to grow bigger and better crops, but how to grow crops *at a profit;* not how to increase the milk yield per cow, but how to produce milk *at a profit;* not how to obtain a reduction in wages and in rents, but how to pay wages and rents and still be left with a fair profit. Farming is beyond doubt partly an art; it is also to a certain extent a science; but it is nowadays first of all and mainly a business, of which the efficiency must be judged by results as shown in the profit and loss account. Advice on how to grow heavier crops is largely unnecessary and partly, by implication, unfair to the farmer of average intelligence; reliable advice on how to grow crops—of any size—*at a profit* would be eagerly followed. The majority of milk producers know how to increase their milk yields per cow, but only a small minority will admit that they know how to do so *at a profit.* Whether it is 'right' that the production of the world's food supplies should have to be regarded simply as a business for the making of profits, or whether it will always be so regarded, is beside the point. We are dealing with things as they are, and not as some people think they ought to be. So long as the farming of this country is dependent upon private enterprise, so long will the farmer be interested in agricultural improvements of whatever kind, mainly, though not entirely, in so far as they can help him to maintain or increase his rate of profits.

But this bald statement must be qualified in two directions. In the first place, we must assume that the desired meed of profit is obtained without robbing the land of its stored-up fertility, and without any unreasonable depreciation in the more permanent farm equipment—buildings, fences, drains, ditches, &c. We must assume that it is not made by a process of sweating the hired workers, or by means of unpaid family workers, and that the farmer himself is living as a worthy citizen ought to live, interested not only in his own personal advancement but also in the general welfare of his country and his countrymen. On any other basis than this the test of profit-making must prove harsh, selfish, and unsatisfying to all that is best in human nature.

In the second place, a moment's reflection will show that even profit-making is only a means to an end, for after all is it not true that what we are all striving for is simply *a higher standard of living?* 'Better farming' and 'better business' are desired mainly and fundamentally because they are likely to lead to 'better living.' It may be said that, given the profits, better living is bound to follow; but there is a problem for the farm manager even here. How to 'make money' may be the more difficult problem to solve, but if the profits are directed mainly towards increased production —increased demand for land, for labour, and for capital,— the ultimate effect on the standard of living will be less than if a greater proportion is spent directly on raising the standard of living. Pernicious doctrine, no doubt, to many, but "there is no reason to believe that in the long-run farmers will benefit any more from better business methods, from orderly production and better marketing than from more efficient methods of production, unless they learn the other great lesson—namely, that *in the long-run any class of producers can get only what it consumes*. . . . A higher standard of living being the goal, how can it be attained? Obviously not without the funds. Better farming, better business, and a square deal for agriculture in the distribution of the national income are the foundations on which better living standards can be built. But unless the increased profits from these sources are used at once in the building of higher living standards, they will be diffused into higher land values and lower prices for farm products, and cease to be available for better living." [1] It is not without significance that this point of view is being widely stressed at the present time in the United States of America, but it does not receive as much attention in this country as it deserves.

We might say, therefore, that the fundamental problem of the farm manager is how to bring about a set of conditions under which he himself, by means of satisfactory profits, could gradually raise his standard of living, and at the same time could afford such wages as would enable his workers to raise their standard of living—always in the light of the standard of living that obtained in other walks of life within the same country.

NO ONCE AND FOR ALL SOLUTIONS.

Having in this way hitched our waggon to the star of a higher standard of living, let us next consider some of the peculiarities of farming problems. And the first is that many of the most important problems in farm management are incapable of solution definitely, once and for all time. Solve a problem in arithmetic, or in chemistry, or in physics, or in physiology, and it is solved—more often than not the accuracy of the solution can be proved. Not so most problems in farm management. Take even the comparatively simple case of manuring. We occasionally come across a farmer who aims to catch 'the expert' out by asking three different experts, say, "What is the best method of manuring my potato crop?" and who, of course, gets three quite appreciably different answers. There is, in fact, no such thing as 'the best' method of manuring potatoes or any other crop, even upon a particular farm, much less for a whole district. The method that gives the biggest crop may not be the best dressing from a profit point of view; much will depend upon the price at which the crop is sold, and who can say beforehand what this will be? The method that gives the most profitable crop this year with a given variety may not do so next year; much will depend upon seasonal conditions, and who can say beforehand what these will be? In addition to what it says, the above question really implies, "What is the rainfall going to be this coming season? Are we going to have an excess or a deficiency of, or merely average sunshine? What will be the market price of the crop when it is grown?" Put in this form, is it not perfectly clear that no definite once and for all solution can be given to this simple little problem? Given sufficient experiments over a long enough period of time, it may be possible to say with fair assurance what method of manuring is likely to yield the biggest profit *on the average*, but this information is only of limited value to the farmer who wants to know how to manure his potatoes *for next year*.

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[1] Henry C. Taylor, in 'Farm Income and Farm Life,' p. 70. (American Country Life Association.)

It is perhaps unfortunate that the expert who makes belief that he has definite solutions for each farmer's problems in manuring, in feeding, in seeding, and so on is very often applauded, while the more cautious but much more reliable adviser, who puts forward his 'solutions' with suitable qualifications and a free use of the phrase 'it all depends,' is thought to be hedging because of his ignorance![1]

But when we come to the more complicated problems, it is still truer to say that they are incapable of once and for all solutions. To what extent should the stock be fed on purchased cakes and meals? A simple enough looking question, and yet one which goes right to the foundation of the whole system of farm management. A correct general answer presupposes accurate knowledge of the average yields and costs of production of the various feeding crops, of the average prices of purchased foods, of the relative returns from different systems of feeding, and so on, after which we must be prepared to find that in any given year the average figures are very far from the actual.

To sum up, farming problems are seldom of the simple order, and they are very rarely as simple as the farmer's critic tries to make them appear. It is partly because of this that all the advice that has been literally showered upon farmers in the past thirty years has so far done little more than show how difficult the main problem is—the problem of how to enable all those dependent upon agriculture for a living to maintain a standard of life in keeping with that found in other comparable circles of society.

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[1] Here, for example, is what a recognised authority says about 'the best ram' for early fat lambs: "It is difficult, if not impossible, to say which breed of ram is most popular or most suitable for fat lamb breeding. Opinion varies widely, and alters from year to year, and in any case much depends upon particular circumstances."—W. A. Stewart, 'Farmer and Stockbreeder,' 10th December 1928. (This example was noticed after the above was written.)

THE PARTICULAR *versus* THE GENERAL.

Another feature of farm management problems is that a solution which may be quite right in a particular case may be all wrong in the general case. To argue from the particular to the general is not only bad logic, but also it creates far more problems that it 'solves.' Advice based upon results obtained in a particular case is apt to be quite sound so long as it is taken by only a *few* farmers; indeed, it is probably true to say that it is offered as sound on the assumption that only a few farmers will take it. And the reason for this is not far to seek. The balance in agricultural production and marketing is very finely adjusted, and any pronounced swing one way or another in any section of the industry very soon upsets the balance.

Two examples of this can be given from a single issue of a weekly newspaper.[1] "One of the most successful beef producers in a noted district" in the West of England, after advocating the early-maturing light-weight type of bullock, adds, ". . . From what one can see of the markets down here, I should doubt if a great many of the small sorts would be wanted *at the bigger price*." And a recognised authority on English meat problems, after showing the advantages of early maturing kinds of sheep, declares, "There would appear to be a danger of overdoing the catering for the fat lamb trade, and of neglecting a comparatively lucrative market for small and medium-sized joints of mutton in winter and early spring." The adviser in farming is indeed very often 'on the horns of a dilemma'—his advice to pay more attention to the fat lamb trade will prove quite sound, provided it is not too generally taken!

On the other hand, farmers are perhaps a little wearied of 'general principles,' which may be perfectly sound so far as they go, but are apt to leave the individual farmer just where he is. The local variations of soil, climate, size of farm, system of tenure, markets, and so on—apart from individual idiosyncracies—are so great that very few of the individual farmer's problems can be solved by means of general principles. Such principles are, of course, stated with reference to 'average' or 'normal' conditions; but it is much easier to talk and write of normal conditions in farming than to attempt to define them—the present writer is certainly not going to attempt it! And so when we seek to impress the farmer with a perfect and unchallengeable statement of general principles, he is likely to say (as he has, in fact, said to me more than once), "Yes, I quite agree, and *now what do you think I should do?*"

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[1] 'Farmer and Stockbreeder,' 10th December 1928.

This, of course, is far from saying that there is no need for general principles, but the individual farmer is mainly concerned with the *application* of these principles to his particular conditions. To emphasise the importance of a general principle is often quite unnecessary; the real problem is how to use it in a particular case. Any one who has had experience of advisory work amongst farmers knows that this is so, but there is still a tendency to mistake the shadow of general statements for the substance of definite advice.

INDIVIDUAL *versus* COMBINED ACTION.

This aspect of farm management problems leads to another, which needs driving home at the present time. So far as the actual process of *production* is concerned, it is true to say that the problems are mainly peculiar to the individual, or at least to small groups of individuals, but it is equally true that the great and all-important problem of *marketing* can never be solved without highly organised combined action. It is here that a somewhat altered point of view seems necessary amongst farmers. The bargaining strength of the average farmer, in this or any other country, is so weak (and it is becoming relatively weaker as time goes on), and the output so insignificant in amount, that no solution of the marketing problem is even remotely possible without concerted and well organised effort. Granted that it is perhaps far from easy for a farmer to be an individualist on the farm and merely a looker-on in the market-place, the effort must be made. So that here the answer to the question, "And what do you think I should do?" is quite easy, "Support the particular organisation that is trying to develop a rational system of marketing the particular produce in which you are interested. And remember that material as well as moral support is necessary." The farmer is quite accustomed to the taking of long views in production, and advice is often rightly turned down because it does not fit in with the long view; but one cannot help thinking that the comparatively slow development on the marketing side is partly, if not largely, due to the fact that he persists in taking too short a view of what a strong marketing organisation can do—he expects such an organisation to 'deliver the goods' in a much shorter time than he himself finds necessary on the production side. Given this lengthened point of view, there is nothing to prevent the organised marketing of British farm produce being achieved within a comparatively short period of time. Progress can be seen on all hands, and many farmers are to-day putting their signatures to a three years' marketing contract who would, even ten years ago, have scoffed at the very idea.

THE FARM MANAGEMENT LABORATORY.

Further, it needs to be emphasised that problems in farm management must be studied on the farm and in the market-place, even in the household, rather than in the laboratory or on the experimental plot. Without casting disparagement in the slightest degree upon the latter forms of research work, it is suggested that the farmer's main problem, as above stated, does not get the attention it deserves ; it is suggested that the farmer's main problem lies in the field of economics, accountancy, and statistics, rather than in that of chemistry and mycology and physiology. How to grow crops is not so important as *what crops to grow ;* how to feed stock is a far simpler problem than *what kinds of stock to feed ;* how to eradicate tuberculosis or abortion or liver-fluke is only the first part of the problem of how to eradicate such diseases *upon an economic basis ;* and by far the most important and most difficult problem on the farm is the handling of the 'labour' staff of men, horses, and machines, with which the scientific, as opposed to the economic, worker is simply not concerned. Educational authorities have for many years rightly emphasised the importance of 'balanced' manuring and 'balanced' feeding; more recently the need for 'balanced' farming has been pushed forward; but it is quite open to farmers to retort with a demand for 'balanced' research work, a demand for rather more emphasis upon the problems just mentioned. Above all, there is need for more intensive study of the problems of marketing, problems which more often than not have a world-wide setting, and which are therefore of extraordinary complexity.

There can be no manner of doubt as to the very marked effect of scientific education and research upon agricultural *production* all the world over; it is equally certain that such increased production has not been altogether an unmixed blessing to the farmer and others dependent on agriculture for a *living*. Every one knows what a super-abundant output generally means to the producer. Is it possible that the fruits of agricultural research during the last thirty years fall into this category? Absurd, is it? But only two years ago Professor E. G. Nourse, a leading authority on agricultural economics in the U.S.A., declared: "Stated as a paradox, the outlook for agricultural production is so good that the outlook for agricultural prosperity is distinctly bad."[1]

And here is another arresting statement, also from an American authority:—

"Just how much more efficient are farmers now than they were *ten or fifteen* years ago? Is increased efficiency, as a matter of fact, at the bottom of the continuance of the agritural unrest? In December of 1923 the late Henry C. Wallace, then Secretary of Agriculture, speaking before the Farm Economic Association, said:—

"'. . . In times such as these, the problems of farm management on most farms are reduced to the simplest terms, and can be stated very briefly. For example, produce as much as you can and as cheaply as you can of what you can produce best; spend as little as you can; do without everything you can; work as hard as you can; make your wife and children work as hard as they can. Having done this, take what comfort you can in the thought that if you succeed in doing what you set out to do, *and if most other farmers also succeed*, you will have produced larger crops than can be sold at a profit, and you will still be under the harrow . . .'

"How much truth is there to this statement? Mr Wallace was not the first to utter it. Nor the last."[2]

Can it be denied that a fair proportion of farmers in this country have been doing, during the last five or six years, all that Mr Wallace said and *are* still 'under the harrow'? Their appeal to Science has failed. Is it any wonder that they are now turning their attention to Economics—to the problems of marketing and such like? We repeat. The solution of the farmer's financial problem is much more likely to be found in the field of economics, accountancy, and statistics than in the laboratory or on the experimental plot. And we suggest that the recent formation of 'The Scottish Milk Agency, Ltd.,' 'The Scottish Wool Growers, Ltd.,' 'The Border Farmers, Ltd.,' and so on is at once an indication that Scottish farmers are also of this opinion, and a proof that they realise the futility of simply producing more and still more, *without* having some measure of control over the disposal of their produce.

THE RIGHT POINT OF VIEW.

In all this we have been pleading for the right point of view, for the right approach towards the farmer's main problem.

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[1] 'Journal of Farm Economics,' Jan. 1927, p. 21.

[2] Prof. H. E. Erdman, 'Journal of Economics,' Oct. 1928, p. 530. Particular attention is called to the words I have italicised.

Nothing is to be gained by refusing to face the fact that it is infinitely more complicated, far more difficult, than scientific workers in agriculture generally realise or admit. We must get rid, once and for all, of the notion that, if we look after production, profits can be left to look after themselves.

From the point of view of increasing the production of food to meet the demands of an ever-growing world population, there can be no possible question as to the need for, and the results from, the application of science in agriculture—results which can only be adequately described as marvellous and which were undreamt of by Sir William Crookes no longer ago than 1898, not to mention Malthus in 1798. But the farmer does not grow wheat and potatoes and cabbages because he does not like to think of people going hungry, any more than the miner digs for coal because he likes people to have a comfortable fireside on Christmas Eve; and there is no greater moral obligation upon the farmer to grow the largest possible crops and maintain the highest possible yields of milk per cow than there is upon the mine-owner to concentrate his attention upon maximising the output of coal.

It is, of course, difficult to write in this strain without being misunderstood. There is no question of belittling the benefits that have been derived from agricultural science during the last thirty or forty years; it is merely a question of who has got these benefits, and it is contended that in the main they have accrued to the general, rather than to the agricultural, community.[1] From the point of view of the general public, including, of course, farmers and farm workers, we want more and still more science in agriculture, but from that of the agricultural community we want far more attention to the problems of farming as a business, and in particular to the problems of buying and selling.

So much for the nature of the main problems in farm management. And now let us consider briefly a few of the specific problems which the modern farm manager has to tackle.

THE GENERAL ORGANISATION PROBLEM.

One of the fundamental problems in farm management centres round the general organisation of land for agricultural purposes, with special reference to the system of tenure ('home' farming, owner-occupiership, or tenancy), the size of the holding and the size of the farm (in the business sense a farm may consist of more than one holding); but it is not proposed to say much under this heading. For one thing, it is impossible, without shutting one's eyes to the facts of the case, to discuss this problem apart from political questions with which we are not here concerned. For another, *whatever the general organisation*, as here defined, most of the problems to be discussed below *would still remain.*

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[1] In his last report the Secretary of the U.S.A. Department of Agriculture says: "In urging better provision for agricultural research I want to emphasise the fact that its benefits go to the entire public and not merely to the farmers. . . . It is true of all the department's work, and particularly of its research work, that the ultimate beneficiary is the entire community."—'U.S.D.A. Year Book of Agriculture, 1927,' page 37.

This much, however, can be said. If we assume that the most desirable form of organisation is that which will be most likely to lead to the highest standard of living amongst farmers and farm workers, then our leanings must be towards a gradual increase in the size of the average farming business and away from the small scale farming of smallholders and peasant proprietors. On the other hand, no system of organisation is ideal which, in effect, compels a man to work for a wage of 40s. per week when he would much rather be 'his own master' with an income of no more than 35s. per week. After all, we must have some regard to what people actually want instead of always insisting upon what we think they ought to want!

The general organisation of the farm lands in this country is much too big a problem to be dealt with in a few paragraphs, and this brief notice must suffice to indicate that in any complete account of 'the agricultural problem' a leading place would have to be given to the system of tenure and the size of the farm business.

THE PRICE PROBLEM.

Now let us ask, What is this price problem about which we have heard so much in recent years? A short time ago I attempted a word of cheer to a farmer friend by remarking on the splendid trade for oats—at that time selling around 38s. per quarter,—and his reply was: "Not much comfort in that for me. I have to *buy* a lot of oats for my horses." There in a nutshell is one aspect of the price problem.

For every buyer there must be a seller. What is a 'good' price to the one may be a 'bad' price to the other; and there is an amount of buying and selling *amongst farmers themselves* (direct or indirect) that is apt to be overlooked.

The hill sheep farmer wants lambs to be dear, the lowland sheep feeder wants them cheap; the corn grower wants wheat and barley to be high in price, the pig and poultry feeders wants just the opposite; the grower of wild white clover seed in Kent has one opinion about 'wild white' at 10s. per lb., but the Scottish buyer has rather a different opinion, and so on. There is, and there can be, no sort of unanimity amongst farmers as to what constitutes 'good prices'; the point of view must vary, because some are selling what others are buying. The problem of prices in agriculture, especially in a country like ours, is made complicated beyond measure because of the great variety of its systems and products. Agriculture is, in fact, not *an* industry, but *an aggregate* of industries.

Two points arise out of this characteristic of the farming industry. First, it probably explains why farmers are inclined to lay so much emphasis upon getting higher prices for the finished products such as milk, cheese, eggs, and livestock; and it is well to remember that about 70 per cent of the value of the output sold off English farms consists of these products, and only 30 per cent of crops, sold as crops.

The economy in meat, milk, and egg production depends to a very considerable extent upon the cost of two items—viz., store stock and feed-stuffs, and these are largely the final products of other farmers. The pig-feeder's problem would be more easily solved with barley at 36s. than at 46s. per quarter, but what would be the pig-feeder's gain would be the barley-grower's loss; and any reduction in the price of store lambs is simply a gain to the sheep feeder at the expense of the breeder.

Much controversy centres round the question as to whether, in making up his milk production account, the farmer should charge his home-grown foods at cost price, at market price, or at some arbitrary price; but a moment's reflection will show that the final profit or loss on the farm as a whole will be *exactly the same* whatever the price charged for home-grown foods—*i.e.*, for intermediate products.

Similarly, if we regard 'agriculture' as one huge farm, then the net profit or loss in the industry as a whole will be (roughly speaking) the same no matter what prices prevail for intermediate products—*i.e.*, for those products that are sold, directly or indirectly, by farmers to farmers. And just as the individual farmer realises that one great factor in determining his net financial result is the prices of what he actually sells off the farm, so farmers in general instinctively realise that one great factor in the prosperity of agriculture as a whole is the level of prices between agriculture and the consuming public—*i.e.*, the prices of what *agriculture* sells.

And second, the diversity of interests in agriculture is so great that it is quite fallacious to assume that if we do what is best for each section of the industry we are doing what is best for agriculture as a whole. This, indeed, is the source of much badly informed and unfair criticism of agricultural legislators and associations, and it explains why it is so difficult for either a Government or for agriculturists themselves to frame a policy that would be acceptable to all classes of the agricultural community, for in all this we must not forget the farm worker's desire for cheap food.

THE VARIATION IN PRICES.

Another feature of the agricultural price problem is *the lack of uniformity in the variation of prices.* If both selling and buying prices rose and fell together and in the same proportion, and if all farmers bought and sold the same commodities and in the same proportion, there would still be a price problem. Actually, of course, the position is in both respects entirely different, and the difference is so well known that it need not be elaborated.

But it may be worth while trying to see what is here involved. The Ministry of Agriculture compiles monthly and annually statistics showing the percentage increase (or decrease) of various prices over the average prices prevailing in the three years 1911-1913.[1] These figures are given below for (*a*) prices of agricultural produce sold off the farm, (*b*) purchased feed-stuffs, and (*c*) artificial manures. In addition, similar figures for farm wages have been calculated from official figures, after making allowance for the reduction in the number of working hours per week.

TABLE I.—PERCENTAGE INCREASE OVER THE AVERAGE PRICES DURING 1911-13.

Year.	Produce sold off the farm.	Purchased feed-stuffs.	Artificial manures.	Farm wages.
1920-21	155	109	150	189
1921-22	82	52	60	132
1922-23	59	38	30	84
1923-24	60	45	18	80
1924-25	62	60	15	94
1925-26	53	28	13	105
1926-27	47	33	13	106
1927-28 (7 mos.)	42	48	3	105

But these figures only tell a small part of the story. The individual farmer is interested not so much in the average prices of farm commodities as in the price of those commodities that he himself sells and buys. And the following extracts from the official figures may be given to show to what extent variations occur in the prices of individual commodities :—

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[1] See, for example, 'Agricultural Statistics,' Part II., 1927. Similar figures are not compiled for Scotland.

TABLE II.—PERCENTAGE INCREASE OVER THE AVERAGE PRICES DURING 1911-13.

Commodity.	Cereal year (Sept.-Aug.).							
	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.	1925-26.	1926-27.	1927-28 (7 mos.).
Wheat	159	55	32	38	65	62	57	36
Barley	119	58	19	43	65	31	45	44
Fat Cattle	157	74	53	52	51	46	31	26
„ Sheep	167	90	93	83	97	60	50	48
„ Pigs	179	77	71	33	52	81	61	29
Milk	186	97	77	70	71	70	63	62
Eggs	178	112	70	74	67	63	49	51
Potatoes	153	121	(—) 9*	135	137	38	81	72
Maize Meal	106	35	44	51	64	33	26	37
Linseed Cake	119	71	46	48	57	42	37	36
Middlings	93	46	24	35	41	17	31	43
Imp. feeding Barley	104	34	20	30	60	20	40	49
Basic Slag	228	141	61	14	12	30	46	43
Supers	202	75	37	27	25	17	14	5
Sulphate of Ammonia	57	5	7	(—) 4*	(—) 10*	(—) 17*	(—) 23*	(—) 33*
Kainit	153	21	(—) 18*	(—) 13*	(—) 6*	11	10	18

* Decreases.

A glance through these tables makes it abundantly clear that variations in prices have widely different effects upon different farmers, and they may be left to speak for themselves. But three points arise out of them to which attention may be called.

In the first place, we must keep firmly in mind that profit is the result of the relationship between expenditure on the one side and income on the other, between buying prices [1] and selling prices. High costs do not necessarily mean losses, nor do high selling prices necessarily result in profits. Apart from what are properly called capital losses, a fall in the level of selling prices is unpopular with the farmer, chiefly in so far as there is no corresponding fall in the level of buying prices (but a 50 per cent fall in both buying and selling prices would mean a 50 per cent reduction in profit).

It may seem unnecessary to emphasise this elementary fact, but we do not think so, for the practice of thinking of both sides of the account at once has never been a strong point with either the farmer or his critic. The farmer objects to a full dressing of manure because he thinks too much of the cost and not enough of the increased returns ; the critic stresses feeding for high milk yields as a ' remedy,' but thinks too much of the increased yield and too little of the cost of getting it. The literature of agriculture—bulletins, reports, articles, and books—is full of this one-sided treatment ; sometimes costs, more often results, are emphasised, but seldom the relationship of the one to the other.

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[1] Wages, of course, represent the buying price of labour.

In the second place, in view of the great diversity of systems of farming and the consequent variation in the commodities in which farmers are chiefly interested, the question arises : What is the relative importance to a given farmer or group of farmers of variations in the selling and buying prices of the different commodities, including labour ? This question can be easily answered by means of simple accounts, but only very recently has any effort been made to systematise the information which accounts can give under this head. Suffice it to say that until the farmer can set out his incomings and his outgoings in proper perspective he will be in danger of concentrating on ' the laces ' instead of on ' the boots.'

THE STABILISATION OF PRICES IDEA.

In the third place, a study of such figures as these makes it quite clear why many farmers are at present toying with the idea of ' stabilisation of prices,' but it also suggests that the stabilisation of prices in agriculture would be likely to prove rather a colossal task. The great obstacle to the realisation of this idea has already been mentioned. If farmers were buying and selling even approximately the same commodities, and in even approximately the same proportions, stabilisation of prices would still be very difficult ; but it passes the wit of this writer to see how any stabilisation scheme could possibly be evolved which would be at once practicable and suited to the widely varying needs of all the different classes of farmers. In any case, stabilisation of prices would be futile unless some guarantee could be given that the stabilised prices would be high enough or low enough, as the case might be, to ensure reasonable profits. From the farm manager's point of view, it is profits rather than prices that need to be stabilised, and it may be assumed that stabilisation of profits on their *present* level is desired by very few. The level at which prices are to be stabilised is all-important, and farmers should be very chary of giving their support to any stabilisation scheme before knowing how the level of stabilised prices, including wages, is to be determined.

There is much to be said in favour of some method by which the long-period fluctuations in the *general* level of prices, due to changes in the value of money, could be prevented; but even then the problem of short-period fluctuations in the prices of individual commodities, due mainly to the relations between supply and demand, would still remain. The long-period fluctuations constitute a problem in high finance, but the short-period variations in prices are, to a certain extent, a domestic problem, and to that extent amenable to control by farmers themselves.

Now let us consider whither these necessarily disjointed and fragmentary remarks on the farmer's price problem are leading us—if, indeed, they are leading us anywhere.

Taking the broadest possible view, we may regard British agriculture as an industrial community which buys from and sells to various non-agricultural communities, and which uses the resulting balance for the purchase of certain quantities of food, fuel, clothing, &c. The position may be summarised thus:—

BRITISH AGRICULTURE

Buys:—

1. Artificial manures.
2. Feed-stuffs—cakes, meals, &c.
3. Machinery and implements.
4. Stores—
   Coals, petrol, paraffin, oil, binder twine, spraying materials, &c.
5. Services of blacksmith, saddler, wheelwright, and other tradesmen.
6. Professional services—
   Veterinary surgeon, valuer, accountant, &c.
7. Transport services.
8. Insurances.
9. Local rate services.
10. Sundries—
    Upkeep of buildings, fences, subscriptions, &c.
11. Administration services.

Sells:—

1. Live stock—
   Fat cattle.
   ,, sheep.
   ,, pigs.
   ,, poultry.
2. Live stock—
   Pedigreed—for export.
3. Live stock products—
   Milk.
   Cheese.
   Butter.
   Eggs.
   Wool.
4. Crops—
   Corn.
   Potatoes.
   Sugar beet.
   Fruit.
   Hops.
   &c., &c.
5. Sundries.

BALANCE IS AVAILABLE FOR

$$\left.\begin{array}{l}\text{Wages}\\ \text{Rent (including interest)}\\ \text{Profit (}\quad\text{do.}\quad\text{)}\end{array}\right\}\text{ to buy }\left\{\begin{array}{l}\text{Food, clothes, fuel, housing,}\\ \text{education, recreation, \&c.;}\\ \text{health and happiness.}\end{array}\right.$$

It is quite true that under the landlord and tenant system, and with wages regulated by law (as in England), it would appear at first sight that rent and wages should be included as payments; but it is plain that in the long-run wages and rents, as well as profits, can be paid only out of the balance as above described. This method of presentation emphasises that the really important figure is the amount of the balance. It also links up this balance with the so-called 'cost of living,' and shows that the standard of living in agriculture must depend partly upon the value of money—that is, upon the *quantities* of food, clothing, education, &c., that can be bought with the balance between what agriculture sells and what it buys. Further, it suggests what is, unfortunately, only too true—viz., that British agriculture competes on the one hand with, say, German agriculture in the purchase of manures, feed-stuffs, &c., and on the other with, say, New Zealand agriculture in the sale of cheese, mutton, &c.

Full consideration of the above 'account' would require a paper in itself. All that can be attempted here is to indicate some ways by which the balance might be adjusted to the advantage of agriculture as a community. We shall rule out, straight away, the possibility of readjustment by means of subsidies and protective or safeguarding duties, for the principal reason that we do not wish to introduce into this discussion what are commonly, but not very accurately, regarded as political questions.

MANURES *versus* FEED-STUFFS.

And first take the expenditure on artificial manures and feed-stuffs. Bearing in mind what has already been shown—feed-stuffs nearly 50 per cent above and manures at about pre-war prices,—would it not be sound policy to try to grow more feed-stuffs on the farm with the aid of artificial manures and so reduce the bill for feed-stuffs? It will probably be said that purchased cakes and meals are necessary to 'balance' the rations for live-stock, but there is a tendency to make the balancing of rations something of a fetish. If we can grow feed-stuffs cheaply enough, then it may pay to 'waste' them. With an abundant supply of cheap home-grown feed-stuffs, there is not likely to be any profit in buying cakes, &c., to balance them if the final result is a glut in, say, the market for fresh milk.

The other question that arises is: Would not an increased demand for manures very soon cause a considerable increase in price? We suggest that the contrary would be more likely, other things being equal. Under modern conditions in the manufacture and sale of most of the principal artificial manures, an increased demand would in all probability result in lower prices per ton (but higher *total* profits to the seller) because of the economies that would be made possible by an increased turnover. No one would say that the ever-increasing demand for motor vehicles has led to ever-increasing prices. Artificial manures are straight or single products (with the principal exception of basic slag), whereas most of the chief feed-stuffs are joint products; the former are manufactured or mined under control, the latter are bye-products in the utilisation of agricultural products from other lands, and are therefore subject to all the difficulties associated with agricultural production—supply varying according to weather conditions, incidence of diseases, &c. The prices of manures are essentially dependent on conditions within the manure industry, whereas the prices of feed-stuffs are very largely determined by the demand for the principal products—oils, flour, starch, beer, &c.—apart altogether from the demand for the bye-products—cakes, mill offals, maize products, wet and dried grains, &c. Hence a reduced demand for feed-stuffs would be likely to result in lower prices, while an increased demand for manures would be likely to bring about an ultimate decrease rather than an increase in prices. This difference in the conditions of production of feed-stuffs and manures is of vital importance, and should not be overlooked.

But we cannot or should not decide upon any line of action without considering *both* sides of the account, and it is when we turn to the income side that the problem becomes more complicated. Meanwhile we are considering how the *total* balance in agriculture's account can be increased. It is not enough that we should reduce the total outgoings by replacing part of the feed-stuffs with artificial manures; we must at *the same time* try to estimate the probable effect on the income side. Nor is it much use increasing the output if the first result is a considerable reduction in the price per unit. A slight reduction would be quite 'permissible' because of the larger output, and the total profit is, of course, profit per unit multiplied by the number of units. Keeping these points constantly in mind, let us consider typical cases that appear on the credit side of the account.

REDUCE THE COST.

And first take *corn*, especially wheat, barley, and oats, which, despite all attempts to minimise its importance, is still one of the 'key' products on British farms in many districts.

Apart from seed-corn, which, of course, does not enter into the above account, it may be said that the level of the output of corn in this country has *comparatively* little influence upon selling prices per unit, and hence increased production, however it might be obtained, would not be likely to defeat the object in view by causing what is popularly called over-production and glutted markets. If we assume, as we must do, that there is no immediate prospect of the application of any artificial stimulus to the price of corn, then the problem becomes one of *more economical production.* Economies in marketing are no doubt possible, but by themselves they are unlikely to go far towards making corn-growing a reasonably profitable branch of agriculture.

Now there is a deal of loose reasoning about this problem of profitable corn production. The argument commonly runs: the average yield of wheat in England is about four quarters per acre, worth at present prices about £9; therefore, it is said, even if we allow something for the straw, wheat-growing cannot possibly be made to pay, unless, somehow or other, we can get a considerably higher price than 45s. per quarter. It is, in fact, assumed that no increase in the average yield is possible without a corresponding increase in the costs of production.

Whether this assumption be sound is rather open to question, in view of the somewhat limited use of manures and of the improved varieties now available; but the point overlooked or ignored is that an average of four quarters means that a considerable acreage is yielding *less* than four quarters, and hence the average yield could be increased by giving up wheat-growing on all lands not capable of yielding at least four quarters per acre, unless under large-scale conditions that permit of very low costs of production.

Looking at the case broadly, there is no use shutting our eyes to the hard facts. Three-quarter crops of wheat under most, and four-quarter crops under many conditions in this country are definitely below the economic margin of cultivation. This, however, is far from saying that wheat-growing in England is doomed; there are still large areas on which wheat can be and is being profitably grown even at 45s. per quarter.

At any rate, our conclusion here must be that if, in a given case, there is no means of reducing the cost of production to an economic level, then there is at present no alternative but to try some other crop or system of farming. The case of wheat is almost entirely a *production* problem.

Somewhat similar reasoning applies to barley and oats, except in so far as (*a*) these crops, especially barley, are more intimately associated with the feeding of sheep, and (*b*) both barley and oats, especially the latter, are more largely used for consumption on the farm. Here also the problem is mainly one of production.

CONTROL THE SURPLUS.

Now if we turn to another class of crops, such as *potatoes*, broccoli, spring cabbage, &c., we find an entirely different set of conditions. Here the home output has almost everything to do with the price per unit, and it is common knowledge that a large output, however it may be obtained, may sell for less than a small output because of the much reduced price per unit. Hence, improved methods of production, of whatever kind, may *defeat* the object in view, *unless* at the same time either the acreage is reduced *or* the surplus controlled by producers themselves. Now, considering the widely different conditions of soil, climate, labour supply, distance from markets, varieties grown, &c., under which a crop like potatoes is produced, apart from the irregular occurrence of a surplus, it will be an extremely difficult matter to work out a practicable and equitable scheme by which a surplus could be controlled as and when it arose. But *there is no other way* of solving the problem. Reduce costs of production per acre, increase yields, improve transport methods as much as ever you can, the key to the solution of the potato problem consists of three words—*control the surplus.* In 1926 the total production of potatoes in Great Britain was 3,662,000 tons, two years later it was 4,545,000 tons—*i.e.*, 24 per cent more. There can be no stability in potato prices, and therefore in potato-growing profits, so long as there can be such wide variations in the output being placed *on the market.*

What to do with a surplus is, of course, a problem in itself, but if potato growers, acting in concert, choose to let 10 per cent of the crop rot in the clamps and sell 90 per cent at reasonable prices, rather than try to sell 100 per cent at definitely uneconomic prices, that is their business.

The importance of the potato crop in the economy of many farms is often overlooked. It is definitely a 'cash crop'; it is a cleaning crop and an excellent preparation for corn, especially wheat; and it is intimately associated with corn-growing through the medium of the straw, which is utilised in the winter fattening of cattle from which the farmyard manure is obtained for the potato crop. If we could devise some economical way of utilising a surplus of potatoes, such as drying them for cattle feed, and of stabilising the market for domestic consumption, we should have gone far towards laying a part of the foundation necessary for the revival of arable farming on sound lines.

INCREASE CONSUMPTION.

The position in regard to *milk* is in some respects not unlike that of potatoes. The need for controlling a surplus is just as great, although it can be said that the methods of utilising a surplus have been more fully worked out for milk than for potatoes. But there are certain important differences. For one thing, there is probably much greater scope for increased consumption of milk than of potatoes. Apart from statistics, which in this case are apt to have rather a propagandist flavour, common observation shows that fresh milk is regarded as something of a luxury. It is not so much a question of getting people to drink *more* milk as of getting them to drink *some* milk. For another, there is undoubtedly room for reduction in the average cost of milk production by the process of weeding out a percentage of the poorest milkers, analogous to the scrapping of the poorest wheat lands. The really efficient milk producers, or those working under highly favourable conditions, are often deterred from increasing their output (and thereby reducing their costs per gallon) largely through the fear of 'over-production.' And further, an improvement in the quality of milk (percentage of butter-fat and bacteriological cleanness) would be likely to lead to increased consumption.

The end point here, as the writer sees it, must be *increased consumption of fresh milk.* It is one of the very few major agricultural commodities which the British farmer can produce without fear of overseas competition; it is a commodity the output of which could be increased enormously in a very short time if only a profitable market could be found; it is a commodity of which the cost of production is capable of appreciable reduction consequent upon an increased output. Control of the surplus is undoubtedly the first step, but it should not be the last. As things are, assuming that profits could be stabilised by means of surplus control, there would be a natural tendency to try to increase the profits by increasing output and so swelling the surplus—*i.e.*, the milk producer would come more and more into competition with imported produce—cheese, butter, 'tinned' milks, &c., into which the surplus would have to be manufactured.

In this respect, we cannot but think that the attitude of producers has been peculiarly short-sighted, for no one can say that they have made, or are making, any concerted effort to support a 'Drink Milk' campaign, while by their tacit approval of the suggestive term 'clean milk,' they have done much to raise doubts regarding the wholesomeness of *ordinary* milk.

Control the surplus, reduce costs of production and consumers' prices, produce better milk; but all this will not take us very far unless we can also increase the sales of fresh milk for liquid consumption.

Before leaving the surplus question, it may be asked, Why not try to avoid having a surplus? Is prevention not better than cure? Take potatoes. Suppose the normal consumption of potatoes in Great Britain was found to be 4,000,000 tons. How many acres should we plant? In a really favourable season we might have as much as 6½ tons per acre for human consumption, so that only about 612,000 acres would be required. But in a poor season the crop available for the table might be only 5 tons, which on 612,000 acres would result in a deficiency of 840,000 tons! An occasional surplus of a crop like potatoes is practically unavoidable, and it would be a very bad thing for the consumer if steps were taken to obviate it completely. Similar reasoning applies in the case of milk, although with rather less force. An agricultural surplus is in the main caused by a little old lady called Dame Nature, whose ways are uncontrollable by mere man!

IMPROVE QUALITY AND REGULATE SUPPLIES.

Lastly, take the case of meat. Here we have the keenest competition between home and imported meat—Scottish and Argentine beef, English and New Zealand lamb, Wiltshire and Danish bacon, Norfolk and French turkeys. The problem is two-fold, or rather three-fold.

There is not the slightest doubt that in this country we must concentrate more and more upon producing a higher proportion of really first-grade meat. No imported meat can compete with the finest home-killed, any more than second and third-rate meat can compete on equal terms with the highest grades of imported. But this is not enough. A meat salesman, whether wholesale or retail, has a fairly steady demand for meat, and he must be able to reckon on having reasonably regular supplies of first-grade home-fed and on getting these supplies with no more trouble than is necessary in handling imported meat. At present it is to be feared that he is often forced to base his purchases of finest English and Scottish meat upon the *minimum* supplies likely to be available. We want to improve the quality of home-produced meat, but we must try also to feed the market more regularly. This, of course, again points to some organisation amongst producers by which supplies would be in some measure controlled, and not simply dumped on the market in the present haphazard way. A big job, no doubt, but is there any other way of ensuring that an improvement in the quality of home meat would result in a rise in the price level—other things being equal?

Nevertheless, there is a third problem here—the problem of how to reduce the cost of production of meat and at the same time maintain the desired regularity of supplies. Improvements in the quality of imported meat, and also in the methods of chilling and transport, are constantly going on, and the day may not be far distant when the best chilled Argentine beef will be almost on a par with prime Scottish. It is here we get back to the corn and potato-growing problems. If we want not only to maintain but to improve the regularity with which meat, especially beef and mutton, is produced at present, we must maintain or increase the output from our arable land. The more land we put down to grass the greater will be the tendency towards an increase in the output of grassland meat, and a decrease in the output during the winter and spring months. And in considering the possibility of reducing the cost of production, we must keep in mind that a lower price level for *store* cattle, sheep, and pigs does not solve the problem, but merely shifts the burden on to the shoulders of other farmers; the reduction must come mainly through lower prices for feeding-stuffs, both purchased and home-grown, including grazing. A mere mention of all that is involved in the farmer's meat problem is sufficient to show how complicated and far-reaching it is. Once we can get agreement upon what the fundamental problems actually are, we shall be in a position to tackle them on really sound lines. The purely negative assertion can safely be made: they will never be solved without some form of marketing organisation amongst producers.

The Size of the Agricultural Population.

So far we have been considering mainly how we might strive to increase the total balance available for distribution amongst landowners, farmers, and farm workers, but there is obviously another possible way of approaching the problem. If we find that we cannot get a bigger apple, then we may be forced to try to reduce the number of little boys amongst whom it has to be divided! In other words, we may be compelled to reduce the number of people dependent upon British agriculture for a living or, alternatively, be prepared to accept a lower standard of life when compared with the standards obtaining in other sections of the community.

As to the number of landowners, shall we follow Mr Orwin and others, who, from motives entirely free from political bias, strongly urge that the State should become the supreme owner of agricultural land, or shall we support the opposite view, which would have us build up a community of peasant proprietors, or shall we simply let things drift? There is not the slightest doubt that the system of tenure has a fundamental bearing upon farm management problems, but whether —human nature being what it is—it is possible to find any one system that would satisfy all the widely differing requirements and aspirations of farmers and farm workers is indeed a very moot question. The immediate point, however, is that by reducing the number of landowners we could maintain the standard of living, even with a reduced balance in agriculture's account, while an increase in the number would at once call for an increased balance, or result in a falling-off in the standard of living.

But, most important of all, have we not too many farmers and too many farm workers seeking to wrest a living, upon modern standards, from British agriculture? Any attempt to answer this question takes us right back to where we started—namely, the objective in farming. What do we want? A prosperous agriculture, capable of maintaining the desired standard of life? Maximum population working on the land? Maximum production of human foodstuffs?

We deplore the falling off in the 'agricultural' population, but why should we? Why should we seek to combat "one of the most enduring and most satisfactory tendencies of human progress—the tendency for an ever-diminishing proportion of human labour to be required for satisfying the human stomach, which, as Adam Smith observed, is of limited capacity?"[1] And we habitually talk and write as if the main objective in farming was to produce the maximum possible quantity of human foodstuffs, forgetting or denying that "there are few things more certain than that getting the greatest possible aggregate amount of produce out of the land will prevent what in twentieth-century England is called a 'living wage' being available for agricultural labour."[2]

Whether a reduction in the output of home foodstuffs and in the agricultural population would or would not be against the national interests is beside the point. That must be the concern of the general community, and is no concern of the farm manager as such. It is, of course, not impossible that, sooner or later, the State—*i.e.*, the community—will assume full responsibility for the condition of British agriculture, although it is quite certain that it will not do so without also claiming a large measure of control. Meanwhile, let us clear our minds of the notion that the farmer who seeks to solve his financial problem by paying off his workers and reducing his output is thereby failing in his duty as a worthy citizen.

Now there is no gainsaying the fact that in recent years farmers and farming organisations have declared with great emphasis and on many occasions that unless 'something' were done they would be forced to reduce their staffs and their output, and they have thereby given rise to the idea that their economic problem could be solved by adopting a line of policy which only considerations for the national welfare have prevented them from adopting. There is, of course, a misapprehension here; the problem is not quite so simple as that solution would make it appear. What is the position?

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[1] Prof. Edwin Cannan, 'The Economic Journal,' June 1923, p. 175.

[2] Ibid., p. 173.

Of the total number of 'holdings' in Great Britain, 311,400, or 65 per cent, are not over 50 acres in extent, while a further 109,400, or 23 per cent, lie between 50 and 150 acres—that is, 88 per cent of the total holdings are of such a size as almost definitely to rule out any possibility of the *individual* holder improving his position by cutting down his staff and his output. At the other extreme, we have 15,000 holdings, or 3 per cent of the total number, which are over 300 acres in extent, and in this group the individual farmer *may* find economic salvation by paying off some of his men and reducing his output.

We are left with 42,100 holdings, or 9 per cent of the total, with an area of between 150 and 300 acres, and we suggest that on such farms the individual farmer has only very limited scope for reducing his staff if the farm is to be carried on in such a way as to yield an output sufficiently high to be at all likely to leave a reasonable profit. In short, our general conclusion must be that the *individual* farmer in Great Britain is not likely to solve his financial problem in the ways just mentioned; indeed, it is fairly obvious that if the solution were as simple as this the problem would not exist.

What is premised, however, in the solution *via* reduction in employment and in output is *a reduction in the number of farms and farmers.* If a farm cannot pay, then either it must go derelict or become part of another farm. With fewer farmers and farm workers, the output *per farmer* and *per worker* would very probably increase, although the output per acre might, to begin with at least, decrease. At the same time, a reduction in the number of farms and farm workers would not affect the output of all commodities alike. For example, there need be no falling-off in the total output of milk or of eggs or of beef, except perhaps during the period of change over, and it is quite possible that the reduction in the output of corn and potatoes also would be only of a temporary nature.

Are we prepared to face this alternative? Fewer farms but better managed and with reduced overhead charges per acre; fewer cows but better milk yields per cow and easier control over the output; fewer acres under the plough but better manured and limed; less capital sunk in submarginal land—cold wet clays, hungry sands and gravels—and more capital in the better lands. Is this the way out of the 'area of deep depression'?

By a reorganisation—a 'rationalisation'—of the industry based upon the elimination of the economically unfit, whether land, farmers or farm workers, machinery, cows, pigs or poultry, and resulting in a better average quality of land being operated, a higher level of efficiency amongst the operators, an improvement in the general quality of all kinds of livestock, and so on, would it not be possible to maintain or even to increase the total home output of human foodstuffs on a *lower level of production costs*, thus enabling the farmer to obtain reasonable profits and the worker reasonable wages. No matter where we turn—making full allowance for all that can be done by surplus control, improvement of quality and regulation of supplies—it is very doubtful whether any permanent improvement in agricultural prosperity can be brought about which is not founded upon *more economical production.* At present the poorer grades of land, of farmers, farm workers, cows, pigs, &c., are partly responsible for preventing a reduction in the costs of production with the better grades. If this be so, there is no alternative: the poorer grades must go.

Of course, there is the problem of what to do with the displaced farmers and farm workers, but that is certainly *not* a problem in farm management. If we set about reorganising agriculture as a business, then we must treat it as a business. If, on the other hand, the general community wishes to regard maximum output of home foodstuffs and maximum agricultural employment as national necessities, then the community must help to pay. Meanwhile, at least, we must assume that the business aspect reigns supreme.

CONCLUDING OBSERVATIONS.

Now just a few words in conclusion. It is hardly necessary to say that this article is not, in any sense, exhaustive. Not only has no reference been made to many problems in farm management, but also the treatment of the special problems raised has been necessarily somewhat incomplete. The main objects are two: first, to emphasise the importance of the right point of view—amongst farmers, farm workers, and their all too numerous critics; second, to try to lay bare certain fundamental principles which must be kept in mind if the problems of farm management are to be tackled on sound business lines. No attempt has been made to minimise the difficulties that lie in the way, nor has any attempt been made even to outline how the problem of a potato surplus, say, might be attacked. A body of men who are capable of organising the Scottish Milk Agency have proved themselves abundantly capable of much greater things. If this article can do even a little to strengthen the position of those who are convinced that a permanent improvement in agricultural prosperity is impossible without closer and closer organisation amongst producers, then it will not have been written in vain.

'LAMB DYSENTERY.'

By W. A. POOL, Director, Moredun Institute, Animal Diseases Research Association.

'LAMB dysentery' is a specific contagious disease of lambs in their first week or two of life. It is an acute inflammatory condition of the bowels commonly associated with multiple discrete ulceration.

It is now so well known, from lectures to agricultural bodies and articles in the agricultural and daily press, that the term 'lamb dysentery' is almost universally adopted. 'Scour' and 'red scour' are common names. In the North of England the terms 'lamb disease,' 'Northumberland disease,' and 'Northumberland lamb disease' are often used to designate this particular condition, probably because for many years it achieved such notoriety and was considered to be so very mysterious. In parts of Yorkshire it is known as 'ray.'

In Scotland it occurs most commonly in Cheviot and Blackface sheep on hill farms. Lambs of the heavier breeds appear to show rather more resistance than Cheviots or Scottish Blackfaces, but are by no means immune. Only very young lambs are affected. In Scottish Blackfaces and Cheviots, death rarely occurs from the disease after the fourteenth day of life, but there are exceptions to this rule. Affected lambs generally die between the third and the tenth days, but they sometimes die within twenty-four hours of birth. The disease occurs in both sexes, and there is no reason to believe that there is any greater incidence in the one than in the other.

In discussing the history of 'lamb dysentery' its real nature must be borne in mind, and a definition must be avoided which permits the inclusion of other disease entities of lambs. At least one author has erred by including 'navel ill,' 'white scour,' and certain, as yet, badly understood conditions such as 'grass ill,' which have no connection with it. There is a good deal of obscurity in the history of the disease. It has been recognised as a serious scourge on parts of the Scottish Borders for fifteen to twenty years. On the English side of the Border, and up to a hundred miles south, it has been a well-known condition for a much longer period.

There has been no survey of the general incidence in Great Britain. The worst infected area appears to be the North of England and the Border counties of England and Scotland. An official of the Ministry of Agriculture has informed the writer that when the disease first became prominent it was spoken of as the 'Skipton lamb disease.'

Gaiger (1924) says: "Lamb dysentery is found in the following counties in Scotland: Argyllshire, Ayrshire, Berwickshire, Dumfriesshire, Kirkcudbrightshire, Midlothian, Perthshire, Roxburghshire and Wigtownshire. In England it is found in Cumberland, Durham, Lancashire, Northumberland and Westmorland.

"In Scotland it has been longest known in Dumfriesshire, and the most recently infected county is Perthshire. In England it has been longest known in Northumberland, and was in existence there long before it was known in Scotland. There are certain farms in Northumberland which have been known as 'hogging farms' for over a hundred years, where every attempt to rear lambs has ended disastrously. On these farms 'lamb dysentery' appears to be endemic, and it is probably from them that the present ebullition of infection over wide areas has taken place."

Lanarkshire, Peeblesshire, Selkirkshire, Cornwall and Yorkshire must now be added to the above list, and it is understood that the disease exists at some other centres in the South of England. There is a small centre in North Wales, but as far as is known there is no record of the infection in Ireland.

Under the name of *bloed pens* Andrews (1913) described a disease in South Africa which appears to be similar to 'lamb dysentery.' Jungherr and Welch (1927) described a lamb disease in the United States of America which is possibly the same as the 'dysentery' of this country. A 'dysentery' in lambs has been described by Newsom and Cross (1925) in Colorado. This was quite different from the condition now under discussion. It occurred in much older lambs, and was caused by a paratyphoid type of bacillus.

'Lamb dysentery' has been considered to be a very fatal disease. In the course of the experimental work carried out at Moredun Institute during the last two years there has sometimes been evidence of the occurrence of mild attacks, and also of recovery after a fairly acute attack. It is quite impossible to form any estimate of the mortality on affected farms, but more lambs than is realised may suffer from a mild attack and make a perfect recovery, the actual illness passing unobserved by those in charge of them. Speaking in general terms and without any guide from actual figures, one may hazard the opinion that the mortality varies from 90 to 100 per cent in animals in which lesions actually develop.

THE INCIDENCE OF 'LAMB DYSENTERY' IN A TYPICAL TRACT OF INFECTED COUNTRY.

The writer has in mind a tract of country chiefly composed of large hill farms, of which there are about thirty in an area of about 200 square miles. The disease was first spoken of in this locality ten to fifteen years ago, and from about 1920 to 1926 appeared to be getting more and more serious. At the present moment fourteen farms are affected, and the remainder are considered to be healthy. With one exception the distribution is in a complete sequence of farms situated at the sides of the area with an isthmus of infection between them, the infected farms occupying about one-third of the area, and taking the shape of the letter H on the whole of it.

There is nothing in the history of the incidence to contradict the view that the disease is an infection spread by bowel excretions. The sheep population is low, about one per two acres, and in these circumstances the opportunities for the rapid spread of such an infection are small.

The spread, while definite, has been quite slow. This is probably explained by the fact that the disease is only highly contagious for the short season of the year in which lambs of susceptible age are in existence, and that by the time the large movements of sheep stock occur in the late summer and autumn, an interval of three months has passed since they were of that age.

A farm in the type of country just mentioned is usually large, up to about 3000 to 4000 or more acres in extent. It is divided into two or three 'hirsels,' each of which is in charge of a shepherd. The disease frequently exists on only one 'hirsel' of a farm, and appears each year in the same 'hirsel.' There is some variation in the mortality in the affected part of the 'hirsel' from year to year, and the disease only occurs in 'clean' 'hirsels' from the advent of a fresh infection, which remains once it has become established. The 'hirsel' is divided up into two to eight 'cuts,' each consisting of two to eight score of sheep. Close study of an affected 'hirsel' with the help of a map generally shows quite clearly which parts of the ground are infected and which parts are free. Fences or other means of restraint to keep the sheep of any one 'cut' from encroaching on other ground are rare, but the habits of the sheep are such that each 'cut' keeps more or less to its own ground. There is, however, contact at the borders of the different 'cuts' in the course of the natural migrations over the ground during the day and night. The areas of infected ground within a 'hirsel' are usually fairly contiguous, though sometimes an infected 'cut' is surrounded by 'clean' ones, with another infected 'cut' or others again as islands.

It is profitable to consider to what extent it would be possible to spread an infection of this nature over the whole of the ground of an extensive acreage of hill country by means of a limited amount of infective material. The original infective agent on a farm has presumably been a definite amount of dung from an affected lamb, introduced either directly or indirectly. A few ounces of dung from affected lambs would presumably be many times greater than the dose which has originally infected most farms. If this were deposited on the ground in one place on a 'clean' farm early in the lambing season, it would presumably cause the disease in a few lambs, the number depending upon their direct or indirect contact with it. By the time the first lambs acquired the disease and became infective to others, an appreciable part of the whole lambing season would have passed, so that during the following weeks in which lambs of a fortnight and under were on the ground, only limited opportunities would exist for them to acquire the disease. The ground, however, would be infected and be ready to catch the early lambs of the next season, when the same process would go on; but again, the season being so short, the increase in the mortality would be moderate, and a serious degree of infection would only be achieved by gradual spread after a few years.

Let us now consider the extent to which we could spread the infection with the few ounces of infected dung if we were to distribute it equally over every square yard of the farm. This could most easily be achieved by diluting it with water and spraying it from an aeroplane. If this were carried out, the amount of infection on any single square yard of ground would be very small, and the amount of infection any individual lamb could pick up would possibly, or probably, be too small to produce the disease.

Various conditions have an influence on the behaviour of the infective agent when it reaches the soil. Disease germs vary considerably among themselves in their food and other requirements. Some are able to withstand very adverse conditions, while others are exceedingly delicate. Some can live under conditions of relatively high acidity, while others prefer an alkaline medium, and so on.

This shows how difficult it is for a disease to spread when one species of animal only is susceptible to it, when the individuals of that species are immune for over ninety-nine hundredths of their lives, and the density of the susceptible population is low.

Gaiger (1924) stated that outbreaks are quite uniform, the deaths steadily mounting up each year, say, 12, 30, 60, and 150 lambs in successive years, and eventually settling down to a steady loss of 30 per cent of the lambs.

There is variation in the incidence from season to season, and the infection appears to occur in waves spaced over a series of years, but the factors determining such variations are very imperfectly understood. During the ten years prior to 1925, ‘ dysentery ’ appeared to become more and more virulent each year. During the last three or four years it has appeared to be on the wane. Successful methods of prevention have modified the natural incidence during the last season or two.

The date of the lambing season varies on affected farms according to the part of the country in which these are situated. On practically all the farms of which the writer has experience, the lambing season commences in the early part or middle of April; cases of ‘ dysentery ’ begin to be numerous in the middle of April and have almost ceased to occur by the end of May. The actual period during which cases are very numerous is only a matter of three or four weeks.

On affected farms the first eight to ten days of lambing usually pass without losses. During the next fortnight the losses gradually increase and usually continue, but sometimes they are said to diminish during the last fortnight of the season. The conditions at this time are very different from those in the earlier weeks, as the number of lambs born is lower and the practice of ‘ shedding in ’ involves moves on to different ground.

SYMPTOMS.

It is perhaps wise to emphasise that reliance upon the study of the symptoms of ‘ lamb dysentery ’ may lead to errors in diagnosis. A detailed description of the symptomatology might lead people to imagine that they could diagnose the disease with accuracy from these indications alone. The reverse is the case. In the ordinary routine of sheep farming death occurs in a fairly high percentage of cases without any obvious illness, and casual inspection may not reveal the cause of death. This feature of the disease has led many farmers to regard it as mysterious, and to allow it to take a considerable toll of the lambs over a sequence of seasons before they have adopted control measures.

Lambs do not show such well-marked symptoms of illness as some other animals, and symptoms may be quite a-typical when ‘ dysentery ’ lesions are extensive. The first sign of illness is usually loss of appetite, and accompanying this there is usually disinclination to move about. In the very acute forms the stage of visible illness is short, and shepherds commonly report that a lamb which was apparently in perfect health when seen on one round, is found dead at the next inspection. In the less rapid forms of illness, symptoms may be present for hours or even days before death. The affected animals are dull, and lie down in spite of efforts on the part of the ewes to get them to suckle or to follow. If they are put on their feet they still refuse to follow their dams. Abdominal pain is usually present and there is straining to pass fæces, but in spite of considerable straining there may be no action of the bowels. More commonly some mucus is passed, and often, though by no means as frequently as would be expected, there is blood in the excrement. Usually the tail is matted with mucus-coated, blood-stained, or very dark-coloured fæces. The stomachs of affected lambs are usually empty, and this is often the strongest indication of departure from health. Sometimes dullness and stupor are the most prominent symptoms.

A minority of lambs, and this is specially the case with the heavier breeds, may suffer from a subacute type of infection, with a stage of visible illness running into many days.

POST MORTEM APPEARANCES.

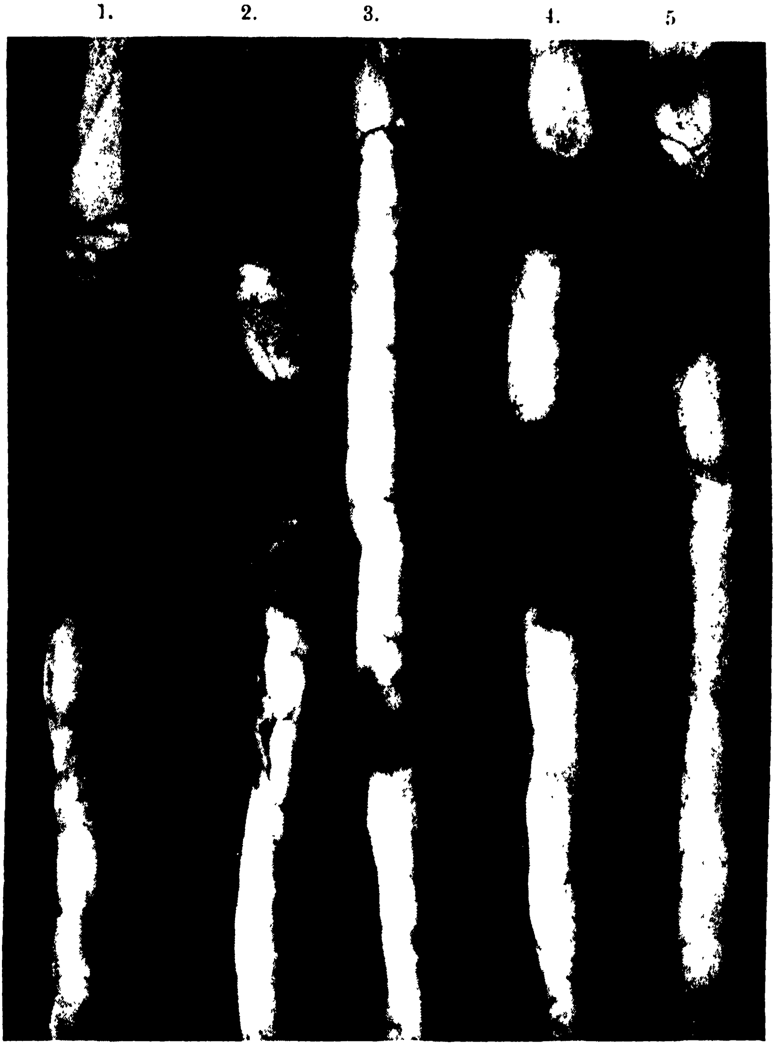
The important lesions are limited to the intestines, and changes in the stomach are dependent on disease elsewhere. Hard clots of milk are usually present in the fourth stomach, but there is no inflammation.

It is convenient to describe two main types of 'lamb dysentery,' a hæmorrhagic type and an ulcerative type. Actually, there is considerable variation from cases in which the lesions are entirely of the one type to cases in which they are entirely of the other, and quite commonly they are of a mixed type. In many cases the most striking signs of the disease are a very advanced hæmorrhagic form of inflammation of the intestines, but careful examination of the small intestine will almost invariably reveal the presence of at least one or two ulcers (Fig. 1).

There are marked differences in the lesions in the small and in the large intestine. There is a tendency for multiple discrete ulceration, with limited areas of diffuse hæmorrhagic enteritis, to develop in the small intestine, and for the diffuse hæmorrhagic enteritis alone to develop in the large intestine.

It is understood that some workers have encountered a purely hæmorrhagic form of 'lamb dysentery' in the Midlands and the South of England. The writer has no experience of this type of the disease, and is unable to describe it.

The type of ulceration seen in 'lamb dysentery' does not



Natural size.

Fig. 1.—*Ulcerated Areas of Intestine.*

The outer surfaces of five lengths of small intestine are shown.

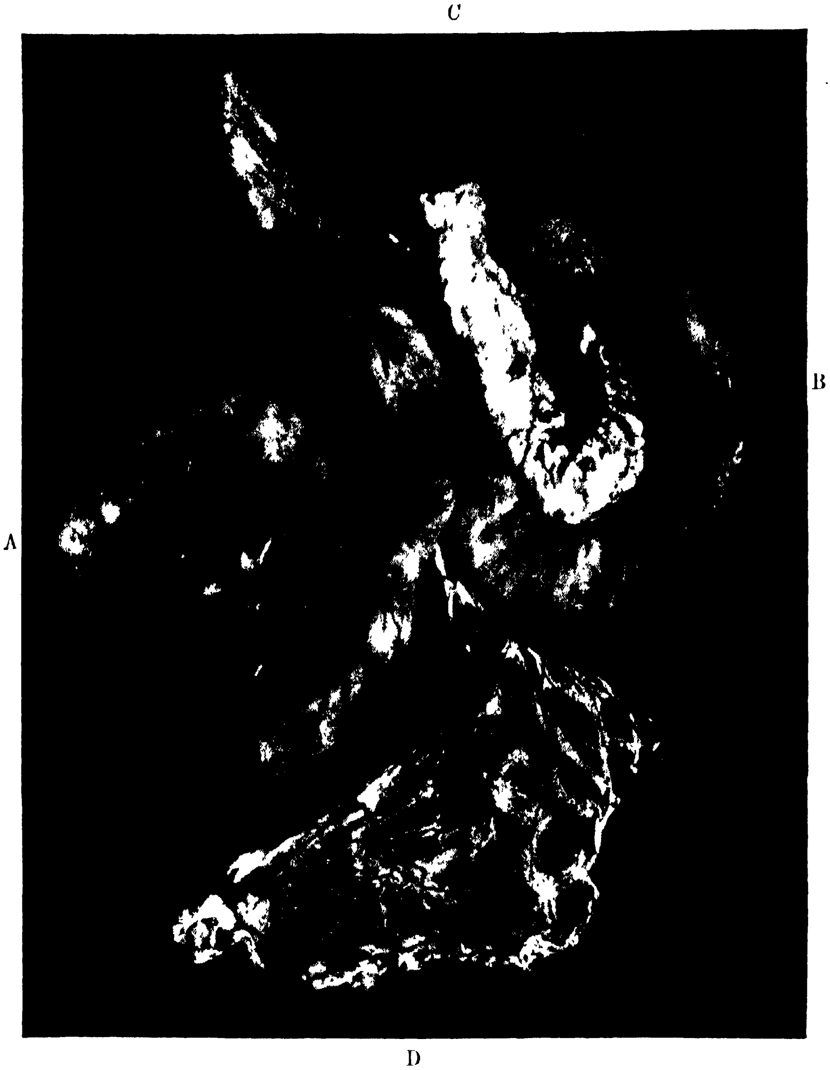
No. 1. There is an ulcerated area involving the whole of the wall of the bowel over a length of more than an inch and a half.

No. 2. There are two separate ulcerated areas, and there is an adhesion to a piece of mesentery in the lower area.

No. 3. There is one area of ulceration at the junction of the middle and lower thirds.

No. 4. There are two separate ulcerated areas. Inside the upper area there is a circular patch of gangrene.

No. 5. There is one large ulcerated area, and, in addition, there are two discrete ulcers.



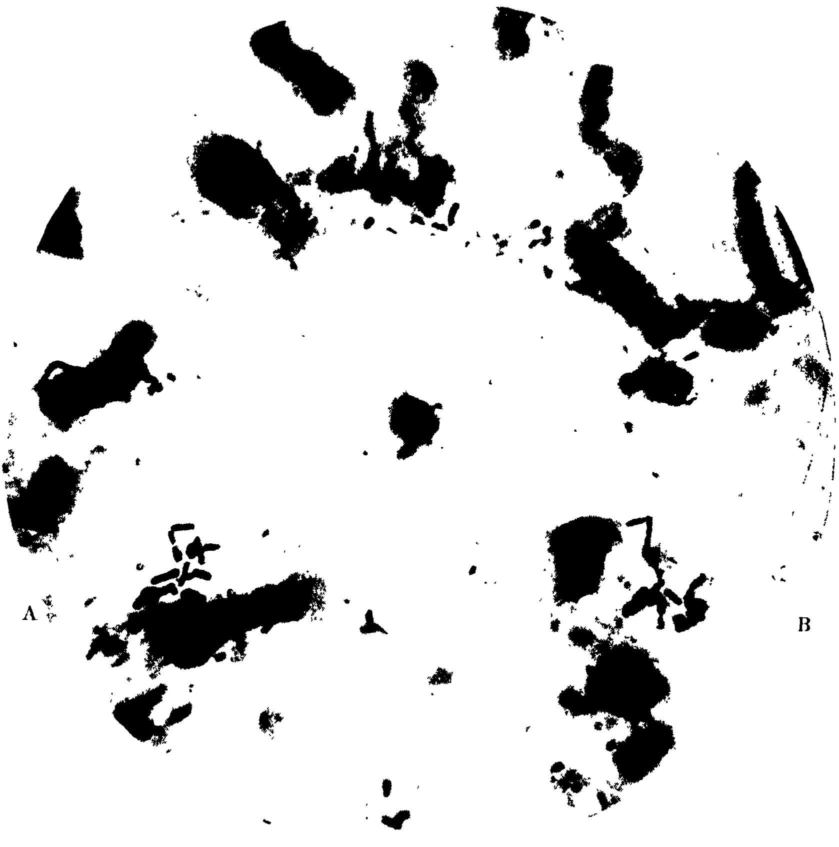
Natural size.

Fig. 2.—*Adhesions.*

Two loops of intestine, A and B, each with one adhesion, are shown.

Loop A is adherent to a part of the omentum, C, and loop B is adherent to a piece of mesentery, D. In each case there was an ulcer on the inside surface of the bowel, and as the result of the localised inflammatory process an adhesion has occurred to the surface of the organ lying adjacent to it during life.

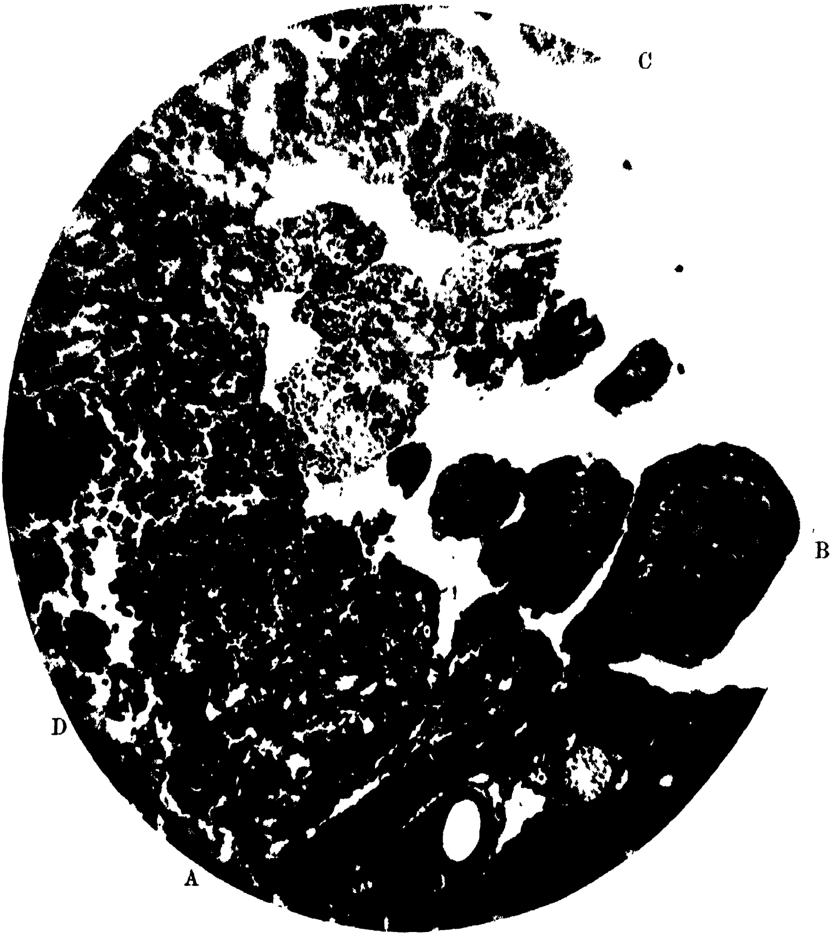
These two pieces of intestine were also adherent to each other.



× 1000.

Stained by the Gram-Jensen method.

Fig. 3.—*Organisms of the* B. welchii *type in the fæcal matter of the small intestine of a lamb which died from dysentery. Two clumps,* A *and* B, *are in focus.*



× 240.

Stained with Hæmatoxylin and Eosin.

Fig. 4.—*Section of Ulcer.*

The edge of the ulcer runs upwards and to the right from A. The healthy tissue is dark and firm in appearance, and the tip of a healthy villus with its covering of columnar epithelial cells is seen at B.

A villus in the affected area is shown at C. The layer of columnar epithelium has been shed and the underlying tissue has stained very faintly because it is dead. Large numbers of red blood corpuscles are present in this villus.

At the base of the ulcer at D there is invasion by white corpuscles which have been attracted by the injury produced in the tissues.

occur in any other disease of new-born lambs. The ulcers vary in size from a pin's head upwards, and bear no relation to Peyer's patches. When well separated they are usually fairly regularly circular, but the larger ulcerated areas have an irregular margin. The edges are generally clear cut, and the crater is filled with yellowish diphtheritic deposit, which can easily be scraped away. The bowel wall is slightly thickened at the site of the ulcer, but there is a sharp margin between the healthy and diseased tissue. The ulcerated areas may be limited to one small part of the small intestine only, or they may occur throughout practically the whole of its length. Even in fatal cases it is not uncommon to find that the only lesions present are one or two quite small ulcers which could easily be overlooked. The ulcers are easily visible from the peritoneal surface of the intestines as inflamed areas of a red or purple colour. A small gangrenous patch extending to the peritoneal coat is sometimes seen inside an ulcerated area, but perforation has not been recorded. There is a great tendency for adhesions to form between adjacent loops of bowel and other tissues within the abdominal cavity, and the adhesions are individually of greater extent in the diffuse hæmorrhagic type than in the ulcerative type (Fig. 2). In the diffuse hæmorrhagic type of lesion the affected area is of a dark plum colour, and the tissues are considerably thickened. Along with this, certain parts of the lesion may be filled with small bubbles of gas even in animals which were killed some hours before death was likely to occur. When the large intestine is affected, the lesion commonly involves the whole viscus.

Blood-staining of the intestinal contents may be entirely absent, or may be so extensive that they appear to be almost pure blood.

ETIOLOGY.

The disease has been studied by at least twenty investigators from five different laboratories, and there has been considerable divergence of opinion concerning its nature. In the light of our present knowledge this appears to be rather extraordinary, but it is probably accounted for by the fact that, until recently, most of the work had to be carried out in the infected area of country. If the earlier investigators had been able to carry out pre-arranged transmission experiments on their own ground in conditions entirely free from any suspicion of natural infection, and if they had been able to use sheep stock derived from parts of the country remote from infection, one or at the outside two seasons' work would have shown perfectly clearly the general nature of the disease, and the manner in which it is spread and contracted.

By working in the infected area of country, investigators were in great danger of obtaining false positive results from attempts to ascertain if an infection were present. The use of a lamb already in the incubative stage of the disease would yield such a result. Actually, it is the case that a false positive result has been obtained. There was also a likelihood or certainty that there would be considerable variation beyond the normal in the susceptibility or resistance of lambs to the disease. A proportion of lambs from a flock in such a district would be likely to possess a relatively low degree of susceptibility. On account of the expense involved, transmission experiments on lambs have to be carried out on a small scale. In these circumstances the random selection of a few individuals with an unusually low susceptibility would lead to a false negative result in what might otherwise be a crucial experiment. It is well known to those intimately concerned in the investigation that certain observers have been unable to produce infection in new-born lambs with what is now known to be certainly infective material. Some of these failures may have been false negative results from the use of relatively immune lambs from the affected area.

All these results have had an enormous influence on the general trend of the work carried out, and investigators have had to make allowances for them in planning their experiments. As recently as the beginning of the 1927 lambing season the writer was compelled to inform certain flockmasters that, as a result of information at his disposal, he was doubtful if it was possible to produce the disease in new-born lambs by feeding them with infected dung, although the general evidence indicated that infection occurred through the mouth after birth.

This led to the inception of experiments at Moredun Institute in order to study the disease on the basis that all previous work required complete revision.

IS THE DISEASE CONTAGIOUS?

Hare and Glynn (1927) discussed 'lamb dysentery,' and suggested that it is not an infection, but is due to a depressed state of resistance, in the course of which the organs of the lamb become unhealthy. They were led to this conclusion partly, or possibly chiefly, from comparison with a disease of infants known as *Melæna Neonatorum*, in which there is severe, and commonly fatal, illness, chiefly characterised by blood-stained stools. The cause of this disease is unknown, but apart from the fact that it affects the bowels of new-born individuals, there does not appear to be much further ground for comparing it with 'lamb dysentery.'

TIME OF INFECTION.

While most observers have considered the disease to be contagious, some have believed that infection occurs *in utero*, and others that the lamb is born healthy and contracts infection in the first hours of separate existence.

Many farmers and shepherds have held the opinion that the lambs are infected before birth, because death sometimes occurs in the first twenty-four hours of life. This evidence, however, led to the suggestion that it could be equally well explained by the presence of an infective agent in the milk of the ewe. It must here be added that there never has been the slightest suggestion that 'lamb dysentery' is associated with udder disease in the ewe. Bacteriological examination of the milk of ewes whose lambs had died from the disease has given no support to this theory. Gaiger (1924) records experiments with such milk in which there was failure to produce the disease by feeding it to new-born lambs, and the writer and his collaborators carried out one such experiment in 1927 with negative results.

INFECTION BEFORE BIRTH.

Gaiger purchased ewes whose lambs had died from the disease and made a bacteriological study of their genital organs, and of the unborn lambs in the case of some which were again pregnant. In each case the genital organs and unborn lambs were healthy, and he was quite unable to find any organism capable of producing the disease before birth. The discovery of typical lesions of 'dysentery' in a lamb which had never breathed would be proof that infection can occur before birth. The only record of this occurrence is a general statement by Bosworth (1925) that competent observers have seen lesions in lambs born dead, but hitherto no details have been published in confirmation of this view. Paul (1925) strongly supported the ante-natal infection theory, but did not produce any direct evidence in its favour.

The Animal Diseases Research Association of Scotland went further into the question in 1927, and Pool, Preston and Brownlee (1928) studied the genital organs of ewes whose lambs had died from the disease at varying intervals before the examination, and attempted to produce it by administering material from these organs to 'clean' pregnant ewes and to 'clean' new-born lambs. All such attempts gave negative results, and there does not now appear to be any reason for suspecting this method of infection.

With infection before birth the manner of spread would be very different from that which would occur with infection after birth. In the former event the infection would probably be transmitted by breeding, and in that case the ram might be the carrier. Claims have been made that this is the case, but so far no corroborative evidence has been published. If the ram were the important carrier, the infection would probably lie in its genital tract, but there is no history of such disease.

Inquiry into the distribution of rams on and from affected farms would show close relationship of 'lamb dysentery' to their movements. No evidence has been found to support such a view. Inquiries have shown that in many instances rams have been bred on affected 'hirsels' and used on 'clean' parts of the farm, or sold for use on 'clean' farms, without giving rise to the disease. If the ram were responsible, the infection would be widespread because of the great dispersal of rams and of the large number of ewes served by one ram.

Consider now the possibility of the ewe as a carrier. It is to be understood that the question is now discussed in general terms. Such occurrences as contagious abortion or a contagious infection of the external genital organs of ewes have probably been observed at times on 'lamb dysentery' farms as on other farms, but they are to be excluded when data concerning 'lamb dysentery' are under discussion, because they are not a feature of the disease. The absence of infection of the genital organs of ewes has already been mentioned.

If infection were acquired while the lamb is within the womb, it would be reasonable to expect that there would be coincident disease of the womb, and that abortion would be a common sequel. Abortions are not, however, a feature of 'lamb dysentery' farms. If the ewe were the common carrier and transmitted the infection before birth, the disease would be widespread instead of being localised. There are enormous movements in ewe stock from affected farms to 'clean' ones all over the country, and there are instances where ewe stock has been sold regularly from infected 'hirsels' to 'clean' farms for many years.

INFECTION AFTER BIRTH.

If the disease is contagious there should be no difficulty in ascertaining the source of the infection. In most contagious diseases the causal agent is present in greater concentration in one part of the body than in others, and, depending on the part of the body concerned, one or another of the excretions is usually the main source of infection. 'Lamb dysentery' primarily affects the bowels. Very little imagination is required to suspect that the infective agent may be present in the excretions from the bowels. It is at this very point that, as has already been indicated, there have been differences of opinion, because some negative results have been obtained in attempts to produce the disease by feeding new-born lambs with fresh fæces from affected lambs.

The avenue of infection must be considered along with the source of infection. In this case the probable avenues were the mouth and the navel, with the remote possibility of infection by inoculation such as through a scratch or other injury to the skin. There never appeared to be any reason to suspect infection through the navel, because from the type of the lesion in the bowels it would be more than likely that if infection occurred by this route, the navel and the vessels leading from it to the liver would be seriously diseased. The navel and the related tissues are healthy in 'lamb dysentery.'

BACTERIOLOGY.

A large amount of work on this subject has been carried out by all those investigating the disease, and there appears to be general agreement as to the types of bacteria present in the tissues of affected lambs.

In a minority of cases cultural examination of the blood yields *B. coli* or *B. welchii* or both. As a rule, however, the blood is sterile.

Cultures of *B. coli*, *B. welchii*, and cocci are usually obtainable from the liver, spleen, kidneys and mesenteric lymphatic glands. Sometimes growths of only one organism are obtained, and sometimes there are mixtures. No complete survey has yet been made of the bacteriology of the alimentary tract. The normal bacterial flora of the bowels of the domesticated animals is very imperfectly understood. The undeveloped state of this particular branch of bacteriological knowledge has been a great handicap in the 'lamb dysentery' investigation. *B. coli* and *B. welchii* are, of course, constantly present, but most of the strains obtained from this situation in normal animals are usually considered to be non-pathogenic.

Gaiger (1920) and Gaiger and Dalling (1921) first suspected *B. coli* to be the cause of 'lamb dysentery' partly because it was found in the course of bacteriological examinations of the tissues of diseased lambs, and partly because on at least one occasion a lamb dosed with the culture contracted the disease.

The presence of *B. welchii* in, roughly, the same conditions as *B. coli* led Gaiger and Dalling at a later date (1923) to believe that the two organisms acting together were responsible for the disease, *B. welchii* acting as a secondary invader after the road had been paved by a special pathogenic strain of *B. coli*.

Dalling (1927) suggested that *B. welchii* alone might be the cause of 'lamb dysentery,' and later (1928) amended this view on the ground that further study of the strains with which he was finally working showed that they were not of the *B. welchii* type, but of a different organism, which he spoke of as "the lamb dysentery bacillus." To simplify the text for the purposes of this article, it will be convenient to consider the bacillus to be a type of *B. welchii.*

Dalling had obtained good results from the use of vaccines and sera for the inoculation of ewes and lambs (1925, 1926, 1927 and 1928). In the earlier years types of *B. coli* and *B. welchii* were used in the preparation of both products, but more recently types of *B. welchii* alone have been used.

The production of immunity by means of *B. welchii* is not proof that the organism is the cause of a particular abdominal disease, because being normally present in the ingesta of most animals it is likely to be of secondary importance in many abdominal diseases.

RECENT INVESTIGATIONS OF THE ANIMAL DISEASES RESEARCH ASSOCIATION OF SCOTLAND.

The evidence was exceedingly contradictory, and as soon as occupation was taken of Moredun Institute it was necessary to carry out carefully planned and controlled transmission experiments to ascertain definitely the nature of the disease and the mode of infection. The ground was first available for this purpose in the autumn of 1926.

1927 SEASON.

In the experiments carried out, the first aim was to ascertain if there is an infective agent in the bodies of affected lambs or in the ewes, and, if so, the avenue through which it gains access to the tissues of healthy lambs.

Search for Evidence of Infection before Birth.

Eleven ewes were obtained in the winter and spring of 1926-27 from farms on which 'lamb dysentery' had caused considerable losses. Two of them were barren, and were killed eight and twelve months respectively after the death of their last lamb. Two, due to lamb in the season following the death of their last lamb, were killed while still pregnant. The fifth was killed immediately after she lambed in the season following the one in which her lamb died from 'dysentery,' and the remaining six were killed in 1927 immediately their lambs died from the disease, this having taken place on the fourth to the seventh day after parturition.

In the examination of these ewes three parallel studies were carried out: (*a*) microscopical examination of the tissues of the genital organs, (*b*) attempts to grow artificial cultures of any micro-organisms present in the genital organs, and (*c*) tests of the effect upon 'clean' pregnant ewes and upon 'clean' new-born lambs of scrapings taken from the inside of the womb.

The direct microscopical and the cultural examinations of the tissues failed to reveal the presence of any micro-organisms which could be placed under suspicion. The introduction of material from the interior of the wombs of the above ewes into 'clean' pregnant ewes by subcutaneous and intravenous inoculation, and into their vaginas and stomachs, failed to produce the disease. They lambed normally, and the lambs remained perfectly healthy.

Introduction of fæces and ulcers from affected lambs into the mouths of 'clean' ewes in the tenth and the twentieth weeks of gestation failed to set up the disease. The lambs were normal when born, and remained perfectly healthy.

Search for Evidence of Infection after Birth.

A small flock of ewes and a ram were purchased from farms in the vicinity of Oban which are known to be free from the disease and remote from any infection. Mr T. M. Macdonald of Barguillean, Taynuilt, Argyllshire, purchased these sheep and also those used in the 1928 experiments for the Association, which is indebted to him for his help in the matter. The sheep were brought to Moredun Institute in the autumn of 1926 and placed on 'clean' ground, and so disposed that lambs were born in a sequence over as long an interval as possible from the end of April in order that they would be available when material was ready for testing.

Introduction of dung from affected lambs into the mouths of 'clean' new-born lambs produced fatal attacks of 'dysentery' with typical lesions. This was as much as could be carried out with the lambs from the ewes mentioned above, and it gave confirmation to the general experience of those working in the Association's laboratory.

Serum Immunisation.

Prior to this season efforts had been made for several years to prepare a protective serum. The results had been exceedingly variable, but there always appeared to be promise, and the work was continued. In the 1927 season two separate sera were used, a *B. coli* antiserum prepared from inoculation of the serum horse with twelve different stock strains of *B. coli* obtained from lambs affected with the disease; and a *B. welchii* antitoxin prepared from the inoculation of the serum horse with toxin from a single strain of *B. welchii* obtained from an affected lamb. These sera were tested on certain farms, and were labelled A and B respectively, so that the users were ignorant as to the nature of the contents of the bottles.

The *B. coli* serum was found to be absolutely devoid of any protective value, but the *B. welchii* antitoxin was very efficient for the protection of lambs against the natural risks of infection.

1928 SEASON.

There did not appear to be any need for further inquiry into the possibility of infection before birth. The evidence that infection occurs through the mouth after birth from affected dung seemed to be perfectly clear.

The programme of work was designed to repeat the experiments in which positive results were obtained in 1927, and then to make an intensive study of the affected fæces in order to isolate the causal agent. It will perhaps be of interest to indicate the outlook of those concerned in the investigation at the beginning of the 1928 season. The following premises were laid down:—

1. There is an infective agent in the fæces of affected lambs.
2. Lambs can be infected after birth.
3. Lambs can be infected by ingestion after birth.
4. Certain *B. welchii* products generally confer protection.
5. The causal agent multiplies very rapidly, and therefore is not a slow-growing micro-organism such as *B. tuberculosis.*
6. The lesions are present in the small intestine.
7. The bacterial flora of the small intestine is normally very much smaller than the flora of the large intestine.
8. Alimentary tract contents obtained *post mortem* from infected lambs for transmission experiments or for cultural experiments can safely be restricted to those from the small intestine.

Programme of Investigation.

The term ‘ fæces ’ will be used in the restricted sense of contents of the small intestine. In the case of each material to be tested for infectivity, the route of infection will be through the mouth, and in the work detailed below the word ‘ test ’ is used with this restricted meaning.

1. Take a fresh sample of ‘ fæces,’ separate it into fractions by heating, and ‘ test ’ the different fractions.
    (*a*) Unheated ‘ fæces.’
    (*b*) ‘ Fæces ’ heated at 60° C. for fifteen minutes.
2. Filter and ‘ test.’
3. Survey the bacterial flora of the fractions detailed in 1, and ‘ test ’ suspected organisms.

For the purpose of the experimental work, ewes and rams were obtained from farms in the vicinity of Oban as in the previous year. They were sent to Edinburgh in the autumn of 1927, and kept in ‘ clean ’ fields at Moredun Institute throughout the winter. Elaborate arrangements were made so that each transmission experiment should be free from all possibility of accidental contamination from another experiment. For this purpose special pens were erected on ‘ clean ’ ground, and as soon as the lamb kept in any one pen had died or was removed from experimental observation, the hurdles used for the construction of the pen, and the ground, were heavily scorched by fire. No piece of ground was used more than once. The attendant in charge of the ‘ clean ’ sheep stock had no contact with the infected stock. In order to study the essential features without risk of accidental contamination, observations were limited to scrutiny of the lambs under experiment without handling, except when they were removed from the pens after death or were discontinued. Water and food were poured into receptacles in such a manner that there was no contact with the pens, and the receptacles were not cleaned until the fifteenth day. In each case the ewe and her lamb, whether kept together or separated, were carried in an efficiently disinfected wheelbarrow from the ‘ clean ’ ground to the ‘ clean ’ pen, or to the hutch in the case of certain lambs which were removed from the ewe and fed from a bottle.

Transmission Experiments.

Tests for the presence of the infective agent in unheated ‘ fæces ’ verified the previous year’s results, which had shown that they contain an agent capable of causing the disease. Fractions from the same samples of ‘ fæces ’ heated at 60° C. for fifteen minutes yielded a most interesting result. The lambs dosed with this material apparently remained in perfect health. In order to ascertain if any lesions were present in these lambs, some of them were killed at the 7th to the 10th day, and typical ulcers were found in two of them which would undoubtedly have survived. Filtrates of ‘ fæces ’ from the same samples failed to produce the disease in three lambs which were dosed.

The commonly occurring organisms were studied, and it was assumed that the agent causing the disease would be present in considerable concentration in the test material. As soon as an examination had been made of the bacteria present in a fair number of the samples of 'fæces' and some knowledge had been obtained concerning organisms which were universally present, tests were carried out with those considered to be of importance. Lambs dosed with all types of culture remained healthy except those which received one culture of the *B. welchii* type, and the disease was produced by feeding small doses of this culture.

Serum Immunisation.

On the basis of the results obtained from the serum immunisation in 1927, work on this subject was limited to a further trial of a *B. welchii* antitoxin. The antitoxin was prepared this year by inoculating the serum horse with toxin from eleven different strains of *B. welchii* obtained from affected lambs.

The serum prepared in this way proved to be exceedingly valuable for the protection of the lambs.

FACTORS CONCERNED IN THE INFECTION.

The work carried out leads to some interesting deductions. In the course of the 1928 season the writer and his collaborators formed the opinion that there is strong evidence of the operation of two complementary factors in 'lamb dysentery' infections, an X factor which is killed by an exposure of fifteen minutes to a temperature of 60° C. and a Y factor which resists that treatment. The X factor was introduced into the argument because of the capacity of the heated fæces to produce ulcers, although the lambs concerned apparently remained in perfect health. There was a striking difference in the behaviour of the lambs dosed with the heated fæces in comparison with those receiving the unheated fæces, and it was necessary to assume that the heating had destroyed the bulk of the infective material, or, alternatively, that a particular qualitative fraction had been completely destroyed. The X factor must be unrelated to anything present in the alimentary tract of normal lambs, because normal lambs were used for the tests. This rules out the possibility that an ordinary strain of *B. coli* might be the X factor.

When a culture of a type of *B. welchii* produced the disease later in this series of experiments, it was necessary to assume that it contained both factors. In this case the free toxin contained in the culture was probably the X factor, and the bacilli or their spores were the Y factor. This is, of course, merely speculation, but it may help to explain many features concerned in the occurrence of the infection.

GENERAL SUMMARY.

There appears to be very strong evidence that a type of *B. welchii* is the actual cause of 'lamb dysentery.' It is not yet possible to say definitely if the special pathogenic properties are limited to a single type or not. Until further knowledge is obtained it will be advisable to assume that only a special type is capable of causing the disease.

All that follows is based on the assumption that the writer's available evidence is correct.

The lamb contracts the infection, there is extensive multiplication of the organism in its intestines, and free toxin is produced. The infective material—the bacilli or spores and the free pre-formed toxin—is dispersed on the ground with the dung in proportion to the presence of suitable conditions. Lambs taking in *a sufficient amount* of this infective material contract the disease. The amount of infective material gaining access to the ground, and the amount of dispersal, govern the opportunities for the infection of lambs in the vicinity. It is quite possible that the minimum infective dose is relatively large, and therefore that lambs may take in a dose which is too low to infect even when in close contact with the material. Throughout the lambing season the production of infective material goes on in proportion as there have been opportunities for lambs to acquire the disease.

As 'dysentery' appears to occur in lambs only, opportunities for active multiplication of the bacilli are probably limited to the time when lambs in their first fortnight of life are on the ground. At the end of the lambing season opportunities for active multiplication cease, and are absent for about ten months. During this interval the free toxin is destroyed, and possibly a large proportion of the bacilli die. By the beginning of the next lambing season only spores of the organism are present on the ground. In this case the first lambs only have an opportunity to take these old spores into their intestinal tracts. It must be assumed that the old spores are able to germinate and to multiply within the bodies of lambs. The lambs born in the first ten days or so of the season on each farm rarely contract 'dysentery.' This may be because there is no free toxin for them to take in along with the spores. If the spores are able to germinate and multiply, toxin will be formed in the intestines of these first lambs, and will be passed on to the ground with their fæces. Once this stage has been reached, infective material is ready for the next lambs that come along.

This deduction also suggests that lambs are susceptible to the disease only for a matter of hours, because if, as has been suggested, there is multiplication of the bacilli which result from the germination of the old spores, the resultant toxin along with the multiplied bacilli would be able to infect the earlier lambs unless their age of susceptibility has passed before the toxin is produced. There is nothing in the history of 'lamb dysentery' to suggest that lambs ever acquire the infection after they are more than a few hours old. The majority of the lambs die before the ninth or the tenth day, and when the older ones are affected, the lesions present appear to be many days old.

The fact that the earlier lambs in each season escape the disease must be significant. In the past the writer has argued that this can be explained by assuming that, in the absence of a susceptible host, the bacilli lose virulence between lambing seasons. The earlier lambs then take in the bacilli, raise their virulence, and excrete them in a state in which they are able to set up infection in later lambs. This factor probably plays an important rôle in the existence of the disease.

Adult stock from infected land must presumably carry the causal agent in their alimentary tracts and on their bodies. The general failure of adult stock to carry the infection when they are taken to 'clean' land may be due to the amount of the causal agent so carried, to the state in which it is carried, or to some other cause.

Control Measures.

It is exceedingly important that the need for employing sanitary control measures be realised. The greatest danger is the affected lamb, which Professor Gaiger has compared to a factory working at full pressure for the production of the cause of the disease. The whole aim of the precautions taken should be to prevent the fæces of affected lambs from gaining access to the ground. Once a lamb is seen clearly to be affected with the disease it should be destroyed. The bodies of all affected lambs should be buried in quicklime along with the surface of the ground in their immediate vicinity. The shepherd should realise that after he has handled a sick lamb or one dead from the disease, his hands, his feet, and even part of his clothing are a potential source of danger to healthy *new-born* lambs.

Many of the ordinary measures taken by shepherds for the good of their flocks during the lambing season are a danger to healthy lambs on 'dysentery' farms. A lambing bag which has held an infected lamb is most dangerous. 'Twinning' healthy *new-born* lambs on to ewes whose lambs have died from the disease is potentially dangerous, and much more so when the skin of the dead lamb is put on the new one in order that the ewe may adopt it. The age of the 'twinned' lamb may be very important in view of what has been said about the probable short duration of the susceptible age.

All 'traffic' from infected to 'clean' land must be considered dangerous, 'traffic' including the movements of all forms of life, with a special eye on the dangers of certain forms of bird life.

It is not possible to give general advice as to the manner in which infected ground can be freed from infection. Efforts in this direction when applied directly to ordinary soil are likely to be wasted labour. The shepherd should keep a tub of disinfectant handy at his house, so that he can cleanse his implements on arriving home and also his boots. He should always scrub his hands thoroughly with disinfectant after touching infected lambs.

Dalling and his collaborators have obtained good results from the inoculation of ewes with a vaccine composed of certain products prepared from organisms of the *B. welchii* type. Two inoculations are given—one in the autumn, and one in the spring shortly before lambing. The ewes are inoculated in order that they may confer immunity on their lambs, and these authors have found that the immunity is conferred entirely by means of antitoxin which is concentrated in the colostrum. Individuals of any species show great variation in their capacity to react to a given dose of a vaccine, and the concentration of antibodies in the colostrum will depend in each case on the capacity of the individual to react to the dose of vaccine used. To this extent a likely fault of the method will lie in the development of a poor antibody response in some of the vaccinated ewes.

These authors have also obtained good results from the inoculation of new-born lambs with a *B. welchii* type of antitoxin.

The Animal Diseases Research Association of Scotland have used *B. welchii* antitoxin for the direct inoculation of new-born lambs in the 1927 and 1928 seasons with good results.

The antitoxin is quite safe, and confers a stronger and more certain degree of immunity than is produced by the vaccination of the ewes, because in order to prepare it horses are repeatedly inoculated with gradually increasing doses of toxin over a period of many months, whereas the ewes only receive two quite small doses.

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AGRICULTURAL CO-OPERATION IN SCOTLAND.

By T. G. HENDERSON, Secretary, Scottish Agricultural Organisation Society.

THE first Agricultural Co-operative Trading Society to be registered in Scotland was the Farmers' Supply Association, Ltd., Leith, which was registered in 1884. After a lapse of twenty-one years this was followed by the establishment of the Eday Agricultural Co-operative Society, Ltd., Orkney, founded in 1905, and in the same year a Poultry Society was established in the Biggar area.

It was early seen that these pioneer movements in agricultural co-operation in Scotland contained within them at least the elements of the solution to many of the agricultural problems then existing. In 1905 a meeting was held under the auspices of the Scottish Chamber of Agriculture to consider the best means of stimulating the movement, and a Committee was appointed with the following remit:—

> "To formulate a scheme for extending the benefits of co-operation to Scottish agriculturists, with power to take such action as might appear expedient for giving the same practical effect."

The result was the formation of the Scottish Agricultural Organisation Society, which is now better known by the initial letters of its title, and is usually referred to as the S.A.O.S.

The S.A.O.S. was registered as an Industrial and Provident Society. At the outset its membership was largely recruited from the landed interests. Many of the proprietors contributed handsome sums to its exchequer, and for a time the Society was self-supporting.

Members of the S.A.O.S. are required to take up one non-withdrawable £1 share and pay an annual subscription, in the case of a proprietor of £1 and in the case of occupying owners and tenant farmers of 5s. per annum.

The first President of the Society was the late Sir John Gilmour, Bart., of Montrave, who held office till the end of 1908. Sir John Gilmour was followed by the late Dr Charles Douglas of Auchlochan, who, until his death in 1924, rendered conspicuous service in the cause of agricultural co-operation in Scotland.

Another outstanding personality in agriculture, whose name will always be associated with the movement, was the late Mr John Drysdale, who was one of the founders of the S.A.O.S. and its Secretary for upwards of twenty years.

The S.A.O.S. does not itself engage in trade, nor does it take any part in politics. Its main function is to assist in the promotion and development of Agricultural Co-operative Societies. As a result of the propaganda carried on by the S A.O.S. a considerable number of societies were founded in the early years of its existence. Good progress was made in the Highlands and Western Islands, where numerous societies were established. Additional egg-collecting depots were founded in Orkney, but the most important development was the formation of milk depots in the West of Scotland.

A number of Stock Improvement Societies were registered under the auspices of the S.A.O.S.

In 1912 the Society received its first grant from the Development Commission. It was a condition of the grant that room would be made on the Executive Committee for two representatives from each of the three Agricultural Colleges.

A year later a new organisation was brought into being—the Scottish Smallholders' Organisation. This created a certain amount of overlapping and competition in the formation of trading societies. Many of the small trading societies founded about this time were societies in name only, and the majority ceased to operate within a very short time of their registration.

The S.S.O. also received grants from the Development Commission, but the post-war economy in the expenditure of public funds led to an inquiry, as the result of which its grants were withdrawn. The Society ceased to function, and the S.A.O.S. was thus left with a clear field in Scotland.

In the early post-war period the National Farmers' Union of Scotland, which had made great strides since its formation in 1913, began to take a greater interest in the organisation of farmers for trading purposes. Conferences were held between the N.F.U. and the S.A.O.S., and as a result four N.F.U. representatives were appointed to the Executive of the S.A.O.S.

Prior to this, agricultural co-operation had been regarded as an excellent thing for smallholders and crofters, but of very minor importance to the large farmers. The depression which followed the boom years of the war, however, had the effect of causing the larger farmers to alter their outlook on agricultural co-operation, and it is noteworthy that the most recent developments in organised marketing have taken place in what may be termed the better farming areas.

In 1926 the S.A.O.S. received a considerably increased grant from the Development Commission, which enabled it to increase its staff of organisers and adopt a more intensive policy.

In the same year the three great agricultural organisations —the Highland and Agricultural Society, the Scottish Chamber of Agriculture, and the National Farmers' Union of Scotland— made contributions to the funds of the S.A.O.S. Apart from the actual amount of these contributions, this practical recognition of the Society was of very great value, as it demonstrated very effectively to the Treasury and to the public at large that there was a solid body of agricultural opinion behind the Society in its efforts to improve the organisation of the industry on the business side.

Whatever differences of opinion may exist between these organisations on other matters, they are, at least, agreed that the work of organising farmers, especially for the marketing of their produce, is of paramount importance. The position of the S.A.O.S. in having the whole-hearted support of the other agricultural bodies in the country is unique, and much of the success which has attended the organisation of the more recent schemes must be attributed to this harmony of interest.

At the present time there are 155 Agricultural Co-operative Societies in Scotland, and in the following pages I will endeavour to give the reader some idea of the nature of the enterprises, their distribution throughout the country, and the extent of their operations.

SOCIETIES FOR THE PURCHASE OF REQUIREMENTS.

These societies are found all over Scotland, with the greatest number in the Highlands, Western Islands, and in the Orkneys.

The societies in these districts are operating on a small scale, the annual turnover ranging from £100 to £10,000.

Many of these small societies, in addition to trading in agricultural requisites, supply household goods, such as groceries and coal. The societies in the Western Islands are really small general merchant businesses.

The largest requisite society is the North-Eastern Agricultural Co-operative Society at Aberdeen, with an annual turnover in the neighbourhood of £190,000. The next in importance, so far as value of turnover is concerned, is the Farmers' Supply Association, Leith.

Smaller societies are located at Inverness, Elgin, Dundee, Leven, St Boswells, Langholm, Stranraer, Islay, and Milngavie. The amount of business done by these societies varies from £10,000 to £25,000 per annum.

In addition, there are a number of still smaller societies in the western counties, whose activities are confined, more or less, to seasonal purchases of seeds and manures.

The total value of business done by the co-operatives in the supply of agricultural requirements in 1927, the last year for which complete figures are available, was £461,673, 12s. 4d.

FUTURE POLICY.

The policy of the S.A.O.S. for the development of collective buying is to work towards the formation of large-scale societies, on the lines of the North-Eastern, Aberdeen, at the principal seaports. These societies could deal with farmers within, say, a thirty miles' radius of the seaport, and the small societies in the more remote regions could deal wholesale with the nearest seaport society. With the formation of half a dozen large-scale societies, collective purchase, which has been tried with considerable success amongst the small societies, could be more easily organised.

SOCIETIES FOR THE MARKETING OF PRODUCE.

Eggs.

There are thirty-nine societies in Scotland engaged in the marketing of eggs. The majority are located in Orkney, Shetland, the Western Islands, and in the Highlands.

The first society to take up the collective selling of eggs was the Eday Agricultural Co-operative Society in Orkney. The poultry industry has developed very rapidly in the Orkneys, and for many years eggs have been the principal export to the south market. Orkney has the greatest hen population per acre and sells a greater proportion of her eggs co-operatively than any of the other counties. Orkney has for long been held up as an example to producers in other areas of what can be done by organised selling.

While the Orcadian farmers and smallholders deserve all credit for the manner in which they have developed co-operative selling, there is still much need for further improvement in the method of handling their produce. Only about 20 to 25 per cent of the Orkney eggs are sold through co-operative channels, and only a very small proportion of these eggs are tested and graded. The Orkney societies, or at least the great majority of them, are working on a small scale, and they contend that because of this, testing and grading, according to the latest regulations, are commercially impracticable.

It would therefore appear that the time has come for a co-ordination of producers' marketing activities in the county on the lines of a large-scale county society.

The societies in the Highlands and Western Islands are working on a still smaller scale than those in Orkney. Because of the nature of the country and the inadequate transport facilities, it is impossible to organise larger businesses. Only in one or two cases is there any attempt to test and grade the eggs.

In 1912 the S.A.O.S., realising the need for a central selling agency, formed the Scottish Farm and Poultry Produce Federation, Ltd., with headquarters at Leith. The Federation has given excellent service to the local depots, but of late years there has been a falling off in support. The small societies do not appreciate the advantages of binding membership contracts, and are inclined to sell direct to wholesalers and retailers, thus intensifying the competition for outlets which in the end means lower prices.

Last year the Department of Agriculture issued regulations for the testing, grading, and packing of home eggs. These regulations have been drawn up with the object of assisting producers, collectors, and distributors to compete more effectively with overseas competitors. The regulations provide for grade designations, and for the use of a national mark by those societies and individuals who comply with the regulations. The scheme is a voluntary one, and, it is understood, will come into operation shortly.

In October 1927 the S.A.O.S., in conjunction with the local branch of the N.F.U., organised an egg marketing society at Turriff. No more suitable centre could have been selected. The farms in the area are of moderate size, and practically the whole of the eggs are exported to the consuming centres in the south.

Aberdeenshire Egg Producers, Ltd., to give the Turriff society its full title, set out to do things as well and, if possible, a little better than the Danes and other overseas competitors. All eggs are tested and graded, and only non-returnable cases are used. The society collects the eggs with its own vans at its members' farms. The eggs are bought by weight.

At the recent annual meeting it was reported that the membership totalled 330, and that the value of eggs sold during the first year was close on £20,000. All members are under contract to supply the whole of their eggs to the Society for a period of three years.

The members are convinced that since the establishment of the Society they have been getting better prices.

Aberdeenshire eggs did not formerly have a very good reputation, but the Turriff Society has had no difficulty in finding outlets for its guaranteed produce.

Deverondale eggs, which is the name adopted by the Society for its produce, are on sale in the best retail shops in the large cities.

The members are naturally keen on getting as much as possible for their eggs, but they realise that the best way to secure higher prices is to increase the demand for their produce by improving and standardising the quality.

It is of interest to note that the Committee of Management is composed of some of the largest farmers in the area.

Another society, operating on similar lines, was formed in Perth in October 1928.

Attempts to establish societies at Lockerbie and Elgin had to be abandoned owing to lack of support.

Central Selling.

As soon as there are sufficient societies to provide an adequate turnover, it is the intention of the S.A.O.S. to set up a Central Selling Agency or national egg pool. It is thought that with half a dozen societies operating on the same scale as the one at Turriff, an egg pool will be possible.

Local societies would be required to contract to sell only through the "pool." Testing, grading, and packing would be done by the "locals."

The ultimate aim should be to secure control of the great bulk of the home produce, and to regulate supplies according to the market requirements.

Under a pool system of marketing, measures could be taken to deal with the surplus supplies, and arrangements could be made with organised producers in other countries as to prices.

The necessity for an efficient central selling agency is not generally appreciated. Producers and local societies are inclined to look only at the additional expense of running a central agency, but they fail to see how much producers lose at present in the lower prices which result from the inefficiency and wastefulness of the existing channels of distribution. If a distributor in a consuming centre has five, or it may be more, offers of home eggs, so much the better for him and so much the worse for the producer. The producer does not know what the wastage arising from the present disorganised system amounts to. He also fails to appreciate that he pays for that wastage. If his eggs passed through his own local and central agencies, he would at least know what his marketing expenses amounted to. It stands to reason that if a producers' selling organisation had control of the bulk of the production, quality could be improved, demand stimulated, and competition avoided, all with benefit to the produce.

Some of the home eggs are not very creditable to the home producer. Only a small proportion are bad, but that is sufficient to give distributors and consumers a preference for foreign supplies. There is only one cure for this, and it is to adopt the methods of our most successful competitors—namely, testing, grading, and proper packing, coupled with co-operative marketing on bold comprehensive lines.

Wool.

The first attempt at large-scale commodity marketing was made in wool, and a growers' society, called Scottish Wool Growers, Ltd., was registered in 1926. The scheme was drawn up by a Joint Committee, consisting of representatives of the National Farmers' Union of Scotland and the S.A.O.S. The Society numbers amongst its 458 members some of the largest sheep-farmers in the country.

Members are required to hold at least five £1 shares ; smallholders who are members hold one share.

The business is run on commission lines, and deals in all classes of wool. Fully half the business is in Blackface wool, but the trade in Whiteface wool is growing.

About half the members have contracted to sell through the Society for three years.

The wool is not pooled. Each member gets the price realised for his own wool, less expenses.

Where necessary, the wool is graded, but many clips go direct to manufacturers at home or to the quayside for export.

The Society's turnover for the first year was about £100,000, and it now handles about 12 per cent of the wool produced in Scotland.

Unlike the Growers' Co-operatives in England, Scottish wool growers do not sell by auction. The wool is sold direct to manufacturers at home and abroad, and in this way unnecessary intermediaries are eliminated.

It is not claimed that a business handling about 12 per cent of the total production can control prices, but it is certainly true that the operations of the Society have resulted in growers getting the last fraction of a penny for their clips. The Society can, however, be developed to cover the whole country, and it is confidently anticipated that in the near future it will have control of the bulk of the Scottish clip.

When the Society was launched it received the blessing of the spinners, who wished the growers every success in their enterprise. From the point of view of the spinners and the manufacturers, it will be all to the good when the growers' organisation controls the whole clip. Manufacturers naturally wish to be able to get their requirements with as little trouble as possible, and it would certainly be more convenient for them if they could purchase graded wool from a growers' organisation controlling the whole clip. Is it really necessary to have about twenty different brokers and buyers calling on growers and a like number offering wool to manufacturers ?

So far as price is concerned, it would surely be possible for the users to arrange prices with a growers' organisation.

It cannot be argued that if the whole of the wool were controlled by one selling agency, it might result in excessive prices, since the success of the agency would depend almost as much on securing the goodwill of the buyers as on improving the position of its members.

Grain.

There are no specialist grain marketing societies in Scotland. The North-Eastern Agricultural Co-operative Society at Aberdeen and the smaller requisite societies in other parts sell a certain amount of grain, but it only amounts to a very small proportion of the available supplies.

It may be on account of the decreased acreage under cultivation, coupled with the fact that more grain is now being used on the farms for stock feeding, but, with the exception of barley, there has been very little demand for organisation in the marketing of grain.

In recent years barley growers in the north-east have been very vocal about the difficulty of securing a fair price for their produce, and they are very sceptical when the distillers tell them that they are at times forced to buy foreign barley in preference to the home grain.

It may be worth while giving the views of a prominent brewer on this question. So far as he was concerned, it was all a question of value for money, time of delivery, and convenience of buying. He could buy 500 or 1000 quarters of foreign barley on one sample. In the case of the home supplies he would probably have had to examine a dozen samples to get that quantity. Again, home barley was sometimes not in a condition to use at the time the buyer wanted it. Making all due allowance for the fact that brewers and distillers are buyers and farmers are sellers, it would appear to be worth the serious consideration of growers whether it would not pay them to give the buyers better service. It profits them nothing to say that, as the foreigner has to cater for an export trade, he must grade and sell in big bulk.

We, in Scotland, are nearer the market. It is true our transport charges are very heavy, but by bulking our barley and railing it in big quantities, we should surely be able to get lower rates. It is significant that a speaker at a Morayshire meeting the other day advocated the drying, grading, and bulking of our home supplies.

That there is need for better organisation in the marketing of grain, there is no doubt. Although there is something to be said for selling early so as to avoid wastage, the fact remains that immediately after harvest there are too many sellers to whom the securing of ready cash, with which to meet their creditors, is of more immediate importance than another shilling per quarter on the price. Many farmers have lost their bargaining power. They have to sell their grain to the merchant who gives them credit for their manure and other requisites. A grain-marketing organisation, to be effective, must be in a position to advance to its members a proportion of the value of their produce until the right time arrives to cash it.

Our friends in Canada have solved many of the problems by means of their wheat pool. The wheat growers of Western Australia have done the same. Incidentally, had it not been for the timely offer of financial assistance by the Co-operative Wholesale Society, it is doubtful if the Westralian Wheat Pool would ever have been organised.

The Canadian Wheat Pool has selling agents all over Europe. We have those who advocate agricultural organisation with the British Empire as the unit. More especially in the case of grain, it would appear to be sound policy to link up whatever type of growers' organisation may ultimately be evolved in this country with kindred organisations in the Colonies.

Milk.

There are nineteen farmers' co-operative dairy associations in Scotland—one at Wick, one at Inverness, one each in Stirlingshire and Dumfriesshire, two each in Kirkcudbrightshire and Wigtownshire, and eleven in Ayrshire. Of these, seven were formed before the war, one during the war, and eleven in the early post-war years.

All the associations, with the exception of one, have depots and plant capable of handling milk, cream, and cheese. The depots at Wick and Inverness have retail branches. The value of the dairy products handled by the milk depots in 1927 was £664,956, 19s. 6½d.

The pioneers who formed the first creamery in Ayrshire laid the foundation of the milk marketing organisation which we know to-day as the Milk Pool. The next development was the collaboration of the National Farmers' Union, representing the non-creamery producers, and the Co-operative Dairy Associations for the arrangement of prices when milk was decontrolled in 1919.

For a time the two sections of producers arranged prices for short periods with the distributors' organisations in Glasgow. In 1921 the producers made a stand for a yearly contract and fixed prices, and ultimately the distributors fell in with this view.

A little later, to save a general break in prices, the parties agreed that a differentiation should be made between the prices to be paid for basic supplies and the prices for supplies that were surplus to the requirements of the liquid milk demand. This agreement was embodied in what came to be known as the Glasgow Agreement.

Where a producer supplied 100 gallons per day during the winter months—November to February—he was paid the agreement price for 120 gallons during the other months, but if he produced in those months more than 20 per cent over his winter quantity, the excess was paid for at surplus price. The price for surplus was based on the price of cheese. It followed that if a producer wished to avoid having to take a surplus price for a big proportion of his summer production, he had to keep up a good supply in winter.

This arrangement worked fairly well for a few years, and, in the main, the agreement prices were maintained.

It should be noted that while, under the agreement, producers were paid a surplus price for a proportion of their supplies, this cheap milk went into the hands of the distributors who were supposed to manufacture it. How much, if any, of it was manufactured will never be known.

Critics of the Milk Agency argue that but for the introduction of the surplus clause there would have been no surplus, and consequently no need for the Agency. They ignored, however, the concrete fact of a surplus. The Glasgow agreement was regarded at the time as a great triumph for collective bargaining, which it undoubtedly was. It does not require much imagination to picture what would have happened to the producers if there had been no annual agreement, even although it was not honoured in every case.

Producers and distributors met as usual in the autumn of 1926, and prices were arranged for the year. Very early in the new contract period, however, it was evident that only a portion of the producers were being paid the agreement prices. There was a serious surplus in the winter of 1926-27, due, no doubt, in part to the surplus clause. The agreement as to the basis on which summer milk was to be paid was not, however, unsound. A producer who allows his production to drop to 20 or 30 gallons in the winter and produces over 100 gallons per day in summer is not entitled to the full summer price for his full production. The dairy farmer who keeps up a uniform supply all the year round is entitled to be protected. The trouble lay in the fact that the surplus was not controlled. It was paid for at manufacturing price, but it went into the hands of the distributors, and was used by them to supply part of their liquid milk demand. The burden of the surplus was not shared equally by all producers. Some managed to get away all their supply at full agreement prices. Others were paid surplus for a proportion of their production, while others, and they were not few, had to accept a surplus price for their whole output.

Collective bargaining, which had worked wonderfully well and was a great improvement on the old "every man for himself" policy, had broken down.

It broke down because, while provision was made for a lower price for surplus supplies, the surplus was not controlled by the producers.

It may appear strange that there was such a serious surplus at a time when prices were anything but high—1s. 3d. in winter and 11d. in summer,—but it has to be borne in mind that more farmers were turning to dairying. Cattle feeding was not paying, and, although milk prices were not high, the monthly cheque was a great attraction.

This change over was taking place in other parts of the country. In one parish in Aberdeenshire there were only two or three dairy farmers about twenty years ago. To-day practically the whole of the farms in the parish are producing milk instead of beef. There was no longer a demand for milk from the East Coast, which, indeed, was beginning to have a surplus problem of its own.

Another factor which contributed to the surplus in Glasgow was the improved transport facilities, which enabled farmers in outlying districts to have their milk in the city at the same time as the producers in the suburbs.

Still another contributing factor was the diminished buying power of the consumers.

Price cutting was general in the winter of 1926. The non-creamery producers accused the creameries of flooding the liquid milk market with supplies which, they alleged, ought to have been manufactured. The creameries' attitude was that they were tired of carrying more than their share of the surplus burden. They were the only people who had ever done anything practical in the way of tackling the surplus problem, and they did not see why they should be definitely relegated to the lower standard of prices obtained by manufacturing while the non-creamery producers obtained the higher prices ruling for liquid milk.

There was little collaboration amongst the creameries themselves. The majority were members of a Creamery Federation, but the Federation was merely an organisation for arranging prices, and was powerless to deal with the major problem of controlling the supplies. The creameries were at sixes and sevens, so far as prices went; so were the non-creamery producers.

Foreseeing the position which would arise in the event of a return to individual bargaining, the S.A.O.S. and the National Farmers' Union of Scotland laid their heads together, and a Committee was appointed to draft a scheme for a Central Selling Agency.

The Committee was composed of six representatives of Co-operative Creameries and six non-creamery producers appointed by the N.F.U.

Many meetings were held under the Chairmanship of Mr James Lennox, Redhills. It was not an easy thing to secure agreement between the two sections of producers, but ultimately an agreed scheme was put on paper and approved by the parent bodies.

THE SCOTTISH MILK AGENCY.

In drafting the scheme, the Committee realised that, if the venture was successful, it would, sooner or later, cover the whole country, hence the title Scottish Milk Agency. It was agreed, however, that at the outset the scheme would be confined to the West of Scotland.

The objects of the Agency, as stated in the Explanatory Memorandum, are to secure a market for the milk produced by its members, and to make provision for the disposal of supplies that are surplus to the requirements of the liquid market.

Provision is made for two classes of members—individual producers, and associations or companies of producers.

Individual members are required to hold one fully-paid £1 share. Corporations—that is, Associations, Societies, or Companies—which are members must hold one share for every producer supplying the Corporation. At the commencement of operations the Agency had a capital of approximately £1000.

For the first year the Agency was controlled by a Joint-Committee of twelve, six appointed by the Farmers' Co-operative Dairy Associations and six by the N.F.U., with a neutral Chairman.

The rules provide that, after the first year, the Committee shall consist of twelve persons, six of whom must represent individual producers and six the Farmers' Co-operative Creameries. The election of the Committee, after the first year, does not lie with any outside body. The personnel of the Committee is decided by the members of the Agency at the annual general meeting.

At general meetings every member has one vote, whether an individual member or a corporation. In order, however, that corporations may be able to pull their full weight, it is provided that, in demanding a poll, and on a poll being taken, a corporation has voting power according to the number of producers supplying the corporation.

Members are required to enter into a contract under which they are bound for a period of three years to sell through the Agency all their milk which would normally be sold in liquid form, and further, they are bound not to sell any milk without the consent of the Agency.

The Agency, on its part, assumes responsibility for finding an outlet for its members' supplies, and guarantees prices.

Members are required to state on their contract forms the average daily quantities which they will have for sale in each month.

Prices.

The Provisional Committee, which drafted the scheme, appreciated the desirability of securing the co-operation of the distributors, and it was accordingly provided that prices would be arranged by the Agency and the Distributors' Associations. These are the prices which the Agency guarantees its members for their contract quantities.

It is laid down that the milk must be of an agreed standard of quality, which for the first year was fixed at 3·25 per cent butter fat.

Finance.

To meet working expenses and to provide for compensation, reserve and development funds, members are bound, under their contracts, to submit to a deduction of an agreed amount per gallon. This deduction was fixed at the outset at 1d. per gallon per day.

In consideration of the fact that creameries are only guaranteed the agreement prices for the quantities normally sold as liquid milk, which in their case means quantities far short of their total supplies, they are only required to contribute ½d. per gallon. This concession to the creameries was also a recognition by the individual producers that the upkeep of the creameries fell entirely on the members of the creameries, and that but for the creameries there could have been no Milk Agency.

Accounts.

It is provided that all contracts for the sale of milk have to be approved and registered by the Agency.

The Agency is responsible for the collection of accounts, so that the member is relieved of the risk of bad debts.

The member renders his account to the distributor in the usual way, and sends a duplicate to the Agency. The Agency collects the account from the distributor, and remits to the member, less the agreed deduction.

Dealing with the Surplus.

Where a member's contract quantity cannot be sold at the agreement price, the Agency makes arrangements for its disposal. Creameries joining the Agency bind themselves to take, on the instructions of the Agency, such supplies as are surplus to the liquid demand.

It was provided that the creameries were to purchase this milk at a manufacturing price, and the cheese or other produce was to be their own property to deal with as they cared. They could not, however, sell the surplus milk as liquid milk without the sanction of the Agency.

The foregoing is an outline of the scheme as it was made public in the spring of 1927.

The daily and agricultural press were sympathetic; the distributors, with one or two exceptions, were hostile, while opinion amongst the producers was sharply divided.

The more distant producers were almost enthusiastic, at least at the propaganda meetings. At first the in-by men could not see past the penny per gallon. They regarded the contribution to the Agency as a subsidy to the distant producers. Their attitude almost amounted to this—that the producer outwith the ten or fifteen miles' radius of the city should make cheese or do anything else he liked with his milk, provided he left the liquid milk market of Glasgow to the producers near the city.

The scheme had a mixed reception at the hands of the creameries. "Why," they said, "should we contribute anything at all to the Agency? We have had to meet our creamery 'overheads' for years; we have done our share of dealing with the surplus. Let the individual producers build creameries of their own."

Then began weary months of propaganda and organisation—meetings, press correspondence, and canvassing of producers at their farms and at markets. The distributors turned the scheme down as being, in their opinion, against the best interests of producers, consumers, and distributors.

By this time between three and four hundred producers had signed the contract form, under the assurance that only in the event of sufficient support being forthcoming would they be bound by the contracts.

A meeting of the near-by producers was held in Glasgow; only about ten people attended. Another meeting was called the following week, and the meeting-place could not accommodate all those who attended to hear the scheme explained. This meeting was a turning-point in the campaign. The in-by men made it known that they were to support the scheme.

One by one the creameries agreed to come in, until about ten were prepared to sign contracts.

When the distributors turned the scheme down, they, unwittingly, did it a very good turn. There was a sprinkling of hardy spirits among the producers who were not prepared to see the scheme fail or be dictated to by the distributors' associations. The canvass for support was intensified, with the result that by the middle of September about 800 individual producers had signed contract forms.

At this stage the distributors' opposition began to break up, and late in October a section of the trade met the Provisional Committee, and an arrangement was arrived at as to prices and other conditions for the ensuing year. At the last minute the Scottish Co-operative Wholesale Society recognised the scheme, and agreed to purchase its whole requirements from the Agency.

Distributors recognising the Agency were required to guarantee to buy from the Agency alone, and it is to the Agency's rigid adherence to this stipulation that much of the success of the scheme is due.

The Agency was registered in October, a manager was appointed, and operations were commenced on 1st November 1927.

It had been a hard struggle, but the promoters experienced one piece of good fortune in the early days of the scheme. A spell of hard weather shortened supplies by about 20 per cent. Milk became very scarce. Many distributors, who would have been quite glad to see the venture fail, were desperate to get supplies, and almost the only way of securing a fair share of the available supplies was to go to the Agency. The Agency's attitude was "not a drop of milk unless you guarantee to take your whole supplies from us." Many distributors were accordingly compelled to fall in with the Agency's terms. During the first few days farmers lined up in queues to sign on as members. Many of them were men who had refused to join when canvassed by the organisers of the scheme, but who had been forced later to join by their buyers. These farmers had no option but to join, as their distributors could not take their supplies unless they were members of the Agency.

Within a week or two of the commencement of operations the great majority of the distributors, both private and co-operative, had recognised the Agency. Three or four consumers' co-operatives managed to secure sufficient supplies from non-agency producers, and were in a position of independence. These co-operatives are still holding aloof.

There was, inevitably, a certain amount of confusion for the first week or two, but the position soon became normal.

The dairy farmers in the west had struck their first really effective blow for freedom. It remained to be seen how the scheme would work in practice.

The consumer was not affected, as the Agency did not seek to increase prices.

At an early stage it was realised that things would not work out exactly as the promoters anticipated, and various modifications of the original scheme had to be made.

The distributor, being compelled to purchase his supplies from Agency members on a yearly contract at the full agreement prices, naturally restricted his buying of individual farmers' supplies to an amount sufficient to cover his minimum requirements.

Certain supplies were consequently thrown on the Agency's hands, and these had to be diverted to one or other of its associated creameries. From such supplies the Agency was able to give the distributor accommodation supplies, and, as the Agency had put him into the position where, for his own safety, he had to buy short on yearly contract, it gave him his accommodation supplies without extra charge. In order to enable the distributor to regulate his supplies as nearly as possible to his requirements, the Agency went a step farther and agreed to relieve the distributor of a member's supply, either temporarily or permanently, despite the fact that the supply had been contracted for, for a year.

Having made sure that a buyer would not get cheap milk, and having limited his margin to the agreed figure of 9d. per gallon, the Agency's policy was to give the distributor exactly what he required in the way of quantity.

Distributors pay the Agency on the 15th of the month for the previous month's supply. Cheques are posted to the members, as a rule, a week later. At the end of each month there is a considerable amount of adjusting to be done. Claims for short measure, spillage, sour milk, &c., have all to be investigated and settled.

As was expected, members did not limit their production to their contract quantities, and the Agency had to reintroduce the old surplus clause of the pre-Agency agreement. Instead, however, of a 20 per cent margin, the Agency allowed its members to increase their summer supplies by 25 per cent over their winter quantities before making any deduction for surplus. So successful was the Agency in finding good markets for the surplus as liquid milk, that it was able to suspend the surplus clause as from the end of July.

A considerable number of the Agency's members are cheesemakers in the summer months. They arrange to have their cows calving so that the flush of milk coincides with the commencement of cheese-making about the beginning of May. A cheese farm has, as a rule, a very small supply in the dead of winter, but the production rises very rapidly towards the commencement of the cheese-making season.

Many cheese farmers will have as low as 20 to 30 gallons in winter, but in March and April supplies will increase to 100 and in some cases to 200 gallons.

The arrangement for the payment of such supplies is as follows :—

When the member makes cheese for one month he is allowed full agreement price for his March and April quantities, provided they do not exceed by more than 50 per cent his quantity in the winter months, November to February. When he makes cheese for two months the margin is 75 per cent, and for three months he is allowed a margin of 100 per cent.

For the first year matters went very smoothly. The distributors appreciated the more stable conditions which the coming of the Agency brought to the trade. Producers, while not too pleased with the prices, were relieved of anxiety as to the disposal of their produce, and looked to the Agency to secure better terms in the future.

A certain amount of trouble arose in the smaller centres around Glasgow, where producers, selling direct to householders, were inclined to cut the price.

A producer-retailer can become a member of the Agency by taking up a share and paying the Agency an annual contribution of 5s. per cow. He binds himself to adhere to the agreement prices at which milk is to be sold to the consumer, and the Agency relieves him of any surplus he may have at the producer's price.

In the unsettled times which preceded the formation of the Agency, many producers, who had formerly sold their supplies wholesale to a retailer, changed over to the retail business, and sold their milk off their own carts to the consumers. In order to establish a round, these producer-retailers would cut the consumer's price of 2s. per gallon and sell at 1s. 8d. This, they argued, was better than selling their whole supply at less than the recognised producer's price of 1s. 3d. delivered.

No problem would present itself if all the consumers in a town were supplied by producer-retailers, and provided all the producer-retailers sold at the same price, whether 1s. 8d. or 2s. ; but when there are also operating in the same town distributors who are distributing only and who have contracted to take their whole supplies from the Agency at the agreed producer's price, a cut of 4d. per gallon in the selling price to the public by the producer-retailers means that the distributors who are buying from the Agency either lose customers or have to attempt to carry on at an uneconomic margin. All the consumers cannot be served by producer-retailers, and it is felt that producer-retailers who are fortunate to be near a consuming centre are sometimes more than a little selfish and short-sighted in their non-observance of the agreement prices.

Of all sections of the trade, the producer-retailers are the most difficult to control. The member of the Agency who wholesales his milk through the Agency cannot cut prices, because he is paid through the Agency and his accounts are checked. The producer-retailer, on the other hand, is frequently a law unto himself. He may appear to be maintaining the agreement prices, but often he is guilty of a more reprehensible breach of the agreement than price cutting—namely, giving his customers extra measure.

Owing to the fact that the Agency was able to sell, as liquid milk, a great proportion of the surplus supplies, which would otherwise have been manufactured, prices for home cheese were more satisfactory than in the previous year.

The arrangement with the creameries in regard to the handling of surplus had to be modified. Instead of selling all surplus supplies to the creameries, which left out of consideration the possibility of selling the milk to better advantage than manufacturing it, the Agency arranged that the creameries would hold the surplus supplies at the disposal of the Agency. The Agency paid the creameries for handling the surplus supplies that were sold as liquid milk, and allowed them so much per gallon for turning the balance into cheese. The surplus milk, which was railed to distant markets, was assembled at convenient creameries, where it was brine-cooled before being despatched.

Looking to the time when their operations would be extended to the East Coast, the Agency, early in the year, acquired a wholesale depot in Edinburgh.

The increasing strength of the Agency's membership may be gathered from the following table :—

	Individual Members.	Producers supplying through Creameries which are Members.
1927. November . . .	894	235
,, December . . .	966	235
1928. January . . .	998	302
,, February . . .	1013	302
,, March	1024	410
,, April	1033	448
,, May	1044	500
,, June	1066	503
,, July	1087	503
,, August . . .	1112	540
,, September . . .	1282	515
,, October . . .	1603	515

The volume of milk dealt with in the year to 31st October 1928 amounted to approximately 19,000,000 gallons, of which almost 4,000,000 were surplus to the home liquid milk demand.

The receipts for the year from individual members' and creamery members' contributions amounted to £68,106, 1s. 6d.

The cost of dealing with the surplus supplies was £33,534. This works out at approximately 2·06 pence per gallon.

Administrative expenses amounted to £6380, 17s. 4d., or approximately ·082 pence per gallon.

The Agency had a nett profit for the year of £20,273.

The capital at 31st October amounted to £2048. The turnover in money for the first year was £1,040,397.

PRICES FOR 1928-29.

There were no long-drawn-out negotiations in the arranging of prices for the new contract period. The whole matter was settled at one meeting.

The following table gives the producers' prices, the wholesale prices, and the prices to the consumer for the years 1927-28 and 1928-29 :—

	1927-28.			1928-29.		
	Producers' Price Delivered.	Wholesalers' Price to Retailer.	Consumers' Price.	Producers' Price Delivered.	Wholesalers' Price to Retailer.	Consumers' Price.
Nov. .	1/3	1/6½	2/-	1/6	1/10½	2/4
Dec. .	1/3	1/6½	2/-	1/6	1/10½	2/4
Jan. .	1/3	1/6½	2/-	1/6	1/10½	2/4
Feb. .	1/3	1/6½	2/-	1/6	1/10½	2/4
March .	1/3	1/6½	2/-	1/3	1/6½	2/-
April .	1/3	1/6½	2/-	1/3	1/6½	2/-
May .	11d.	1/2½	1/8	1/-	1/6	2/-
June .	11d.	1/2½	1/8	11d.	1/2½	1/8
July .	11d.	1/2½	1/8	11d.	1/2½	1/8
Aug. .	1/3	1/6½	2/-	1/1	1/6½	2/-
Sept. .	1/3	1/6½	2/-	1/3	1/6½	2/-
Oct. .	1/3	1/6½	2/-	1/5	1/10½	2/4

The producers' average monthly price for 1928-29 is $1\frac{1}{12}$d. per gallon higher than the average for 1927-28 ; between them the wholesale and retail distributors have an increased margin of $\frac{11}{12}$d. per gallon, which works out at an average increase of price to the consumer of 2d. per gallon.

From the point of view of cost of production it cannot be said that the new producers' prices are too high.

It may, however, appear strange that the Agency, being a producers' organisation and having control of the bulk of the supplies, should concede a substantially higher margin to the distributors. In pre-Agency days the distributors had a margin of 9d. per gallon—that is, if they bought all their milk at the agreement price. Despite their lamentations about the burden of the surplus, however, it is known that much of the milk which they sold at the full price to the public was bought at prices less than those laid down in the agreement with the producers. The margin of 9d. per gallon was accordingly a minimum margin. In all probability some distributors had an average margin of nearer 1s. than 9d. per gallon.

In the old days the producer did not know what the distributor's margin was. To-day the distributor, unless he is in breach of the agreement, and very few will take the risk of breaking the undertaking to buy only through the Agency, cannot have a margin of more than $9\frac{11}{12}$d. per gallon over the year.

One argument used by the distributors in their plea for an increased margin was the extra cost of bottling milk. It is a pity that the consumer should have to pay more for his supply, but if he demands additional service and insists on having bottled milk, then he must be prepared to pay for it.

The greater part of the increased price which the consumer is required to pay is, however, accounted for by the increased price to the producer.

In November the Agency extended its operations to Aberdeen, where it has the support of the great majority of the local producers and distributors.

The Future.

While the members of the Agency have every reason to be satisfied with the result of the first year's operations and the prices that have been arranged for the second year, it cannot be emphasised too strongly that the testing time has still to come.

There was over-production last year, but, owing to the success which attended the Agency's efforts in finding outlets for a great part of the surplus as liquid milk in distant markets, and also owing to the relatively low price of liquid milk and the relatively high price of cheese, the drain on the Agency's resources was not too severe.

Over-production will be more serious this year. In November alone the Agency had to deal with 60,000 gallons more milk than in November 1927. This means more cheese-making, with every likelihood of lower prices for home cheese.

The increased winter price to producers increases the Agency's liability by 3d. on every gallon of the contract quantities which cannot be sold as liquid milk, but for which the Agency has to guarantee the agreement price.

The Agency has safeguarded itself by paying full prices for last year's quantities, plus 10 per cent. Some members resent having any part of their supplies paid for as surplus. If a distributor takes all their supply and pays the Agency full price for the whole supply, they argue that the Agency has no right to make deductions for surplus.

But what about the supplies which cannot be sold as liquid milk, and which the Agency has to divert to creameries for manufacture into cheese? The producers of those supplies have just as good a claim to the full liquid price as the producer whose supply is actually sold at that price. To quote from the speech of the Chairman at the annual general meeting:—

> "Since all alike could be made victims of surplus, all alike must share the responsibility for it. At the prices prevailing this year and the excess volume of milk they are producing, their contributions would not cover, nor anything like cover, the cost of manufacturing it, if they were to pay the full price for the excess. For a member to say that since his milk was all going to a particular dairyman he could obtain the Agency's price for the whole of his milk without any deduction would immediately mean the total disintegration of the Agency."

The Agency has never maintained that it could return good prices for all the milk its members cared to produce, nor has it said that it can eliminate the surplus. Its business is to secure for its members the best prices possible, taking all the circumstances which affect prices into account, and to control the surplus. Obviously if the members produce far in excess of the requirements of the liquid market, prices will be adversely affected.

The most certain way of eliminating the surplus is to bring about increased consumption. The Agency is alive to the need for supporting the "Use more Milk" campaign, and has already contributed to the funds of the National Milk and Health Association.

Another problem confronting the Agency is how to make better use of such supplies as cannot be utilised in liquid form. A good deal of preliminary work has been done already by the Empire Marketing Board and the Milk and Health Association, and the Agency has signified its desire to co-operate. Money is needed, and while a certain amount of assistance will doubtless be forthcoming from public funds, the producers cannot shirk the responsibility of sharing the cost of the investigations and experiments. The value of the imports of condensed milk, powdered milk, and other milk products is staggering. Surely it is possible for the home producers to supply part, at least, of the country's requirements of these commodities.

So far as the domestic affairs of the Agency are concerned, there remain many problems to tackle. The creamery producers consider that they are still getting less for their supplies than the non-creamery producers. Since the Agency cannot carry on without the creameries, it is only reasonable that the overhead charges of the creameries should be spread over all producers. In the course of time the Agency may have to take over the creameries. One difficulty, however, is that there are creameries where, under present day conditions, no creameries are really necessary. There are too many creameries in North Ayrshire, and too few, or none at all, in some other parts of the south-western area.

In the end of the day the bulk of the supplies will be concentrated at creameries. When that happens milk can be paid for on a quality basis.

The distant producers in Wigtownshire are becoming more and more insistent on their right to participate in the liquid milk trade. This question may be solved by setting up zones with zonal prices. There are, however, obvious difficulties in defining zones. For one thing, the producers just outwith the inner zone would object to receiving a lower price merely because they happened to be a mile farther from Glasgow than those on the inside edge of the higher-priced zone.

All these problems, and the many others which I have not touched, will doubtless be solved in time.

The great cause for satisfaction is that, with the advent of the Agency, they are nearer solution than they were.

Within the next year or two the Agency should be operating over the whole country. Every area has its own problems, but no area is independent of the other. Edinburgh is only an hour's run by train from Glasgow, Aberdeen less than four. Our organisation must be a national one.

What can be said of the producers in the south-west who have not yet joined the Agency? In addition to a considerable number of individual producers, there are still five creameries standing aloof. Presumably those producers will remain out until they are forced to come in. If the remaining consumers' co-operatives in Glasgow were to recognise the Agency, many of the non-Agency farmers would be compelled to join. There is gradually creeping in a better feeling between the industrial and the agricultural co-operative movements. Here is a splendid opportunity for a friendly gesture on the part of the consumers' societies in Glasgow who have not yet recognised the Agency.

In the meantime the non-Agency producers have the doubtful satisfaction of knowing that they are reaping where they have not sown.

Potatoes.

There was a movement last year in the Perth area for the formation of a potato marketing society. It was, however, ulitmately decided that for potatoes a marketing scheme would require to be on a national scale. The matter is now being considered by the National Farmers' Union of Scotland and the S.A.O.S.

The formation of a workable scheme for the organised marketing of potatoes presents many problems ; indeed, in some quarters, it is thought that the difficulties are insuperable. It cannot be denied, however, that the potato trade requires bringing up to date. Its methods are those of thirty or forty years ago.

The present " disorderly marketing " may suit some merchants and some growers who like the gamble and who can afford to take the rough with the smooth, but the violent ups and downs of the market are disastrous for the average grower.

The grower is helpless when it comes to marketing his potatoes. He has no source from which he can secure disinterested advice. He hears plenty of talk about foreign imports and a great deal about the surplus. If our marketing methods were improved there would probably be less opportunity for the foreigner to operate ; and, so far as surplus is concerned, no matter how great it may be, it will always pay better in the end to control it than to leave it uncontrolled. Until the surplus is controlled its amount will never be known.

Standardisation of grades, the regulation of supplies, and the disposal of surplus are problems that have to be faced. It is impossible, under present conditions, to regulate supplies and dispose of the surplus. These things will be possible only when the growers control the bulk of the produce through their own marketing organisation. It does not follow that the merchant will be eliminated. There is room for the efficient distributor.

Sooner or later there will be a national potato pool in Scotland, and it is likely to be sooner rather than later, because the need for it is very great.

Marketing of Live Stock and Dead Meat.

Very little has, so far, been accomplished in the way of better organisation for the marketing of live stock and dead meat. Although many of the live stock marts in Scotland are financed and controlled by farmers, only one is registered as a co-operative society—namely, the Kincardineshire Auction Mart, Ltd.

There is only one farmers' co-operative slaughterhouse in

Scotland—Scottish Border Farmers, Ltd., St Boswells, which was registered in the beginning of 1928.

As in other branches of the industry, so long as times were reasonably good, there was no outcry for the reform of marketing methods, but the depressed state of the fat cattle trade has created a feeling of dissatisfaction, which is finding vent in a demand for better selling organisation.

Many feeders are beginning to wonder if the auction marts are as efficient as they might be, while others are inclined to the view that the time has arrived for a radical change in the methods of marketing, particularly in the case of fat stock.

Under the present system the feeder has no reliable source of market intelligence. The auctioneer doubtless can give some idea of the state of the market and the outlook for the future, but should he advise an inquirer not to sell his cattle at a certain sale, he always runs the risk of losing the sale of the cattle altogether, because an opponent may advise that the cattle should be sold and get the cattle to sell. If an auctioneer could be sure of his customers he would be in a better position to give disinterested advice.

The feeder tries to gauge the market himself. He makes up his mind that trade is to be good in the beginning of the week, and consigns some cattle. Many other feeders may do the same. The result is a glutted local market, and trade may turn out to be anything but good. London rules the trade, we are told, and some extra cattle consigned to a sale make little difference, but the fore-quarters have to be consumed at home, and, if too many cattle are offered and the price of fore-legs drops 2d. or 3d. per lb., it is easily seen how serious are the effects of a local glut.

About half our meat requirements come from abroad. The feeder does not know what supplies are on the way from the Argentine, or what quantities are being released from cold storage. Every one is working in the dark—the feeder, the auctioneer, and the dealer. All are gambling, and all maintain that there is no money in the business.

The trouble is that very little attempt is made to regulate supplies to the market requirements; indeed it is almost futile, under existing conditions, to attempt anything of the kind.

How can the supply be regulated? First of all the producers must get control of the bulk of the cattle, and that can best be done through the formation of farmers' co-operative slaughterhouses at suitable centres. Get the feeders in an area to bind themselves to market all their fat stock through their slaughterhouse. Cut out the auctioning of fat stock. It is an expensive way of determining the price.

Grade the meat in the carcase. Equip each slaughterhouse with cold storage. If the market does not require the meat at the time of slaughter, put it in cold store. There can be a big change in the market in a week or ten days, and cold storage for that period would not do the meat any harm; indeed, some of it would be all the better.

Link up the slaughterhouses in a Central Selling Agency, which would control the movement of supplies.

All this looks very easy on paper, but there are tremendous difficulties in the way. Those who make their living by the present system are not likely to give up without a struggle. A system of credit would have to be devised. Money would have to be found to build and equip the slaughterhouses, and there is the difficulty of devising grades for meat. These difficulties, however, can all be overcome if there is the will to do it, and something of the kind will have to be attempted if the cattle feeder is to get a better return. It is wonderful how difficulties can be overcome when adversity drives.

The following particulars of St Boswells Slaughterhouse may be of interest:—

The scheme was drawn up by a local Committee in conjunction with the S.A.O.S.

The Society has a membership of approximately 200, and a capital of some £4600 in fully-paid £1 shares.

Suitable premises, formerly used as a grain store, were purchased in May 1928. The premises are close to the railway; indeed, supplies are loaded direct from the slaughterhouse into railway vans. The necessary alterations were carried out, and the premises were equipped in time to commence operations in the middle of September.

The cost of the buildings, alterations, and equipment was approximately £3000.

A manager was appointed who had had long experience in the trade, both home and import.

Since the commencement of its operations the Society has handled on an average approximately 1000 sheep, 60 cattle, and 50 to 100 pigs per week.

The staff consists of a manager, clerk, eight to ten slaughtermen, and two "offal" men, who are employed and paid by the firm which has the offal contract.

Slaughtermen are paid by the piece.

The Society's charges for receiving, selling, dressing, and despatching are at present: sheep, 9d. per head; cattle, 4s. 6d.; pigs, 1s. 6d. to 3s. 6d. according to size. In addition, a commission of 4d. on the £1 is charged on all sales. Payment to members is made weekly.

Carcases are sent mainly to Smithfield, but considerable and increasing numbers are sent to Glasgow, Edinburgh, and consuming centres in the North of England.

At one time it was intended to open a retail shop, but on more mature reflection the Committee decided that the Society's best policy would be to build up a connection with good retail butchers. It is gratifying to note that the retailers are not looking on the venture with a hostile eye, and that the Society is sending regular supplies to a considerable number of butchers throughout the country.

Approximately 50 per cent of the members have guaranteed to consign for three years. In the contract a clause has been inserted providing for liquidate damages in cases of default. The damages have been fixed as under :—

Sheep	1s. per head.
Pigs	2s. 6d. per head.
Cattle	3s. 6d. per head.

Many of the members do not fatten stock regularly, or, indeed, at all, so that it was impracticable to enforce a condition that all members should guarantee to consign stock to the Society.

Many of the members are hill sheep farmers, and their usual practice is to sell their lambs in the store ring. At times, however, a proportion of the lambs are in condition to slaughter, and in such cases they can be sent to the slaughterhouse instead of being sold through the store ring at the local auction mart.

The Society is managed by a Committee drawn from the largest farmers in the area.

The members are very keen, and it is pleasing to note the interest which they now take in their animals after they are slaughtered. Many of the members come to see the carcases, and the manager has an opportunity of pointing out the good features and explaining what is lacking.

It is not claimed that all the members have been highly pleased with their returns. Fluctuations will still occur until we are organised on a national scale. One farmers' slaughterhouse cannot control prices, but it is hoped that if the new Society is successful, producers in other parts will follow the lead of the pioneers at St Boswells and establish their own slaughterhouses, which can then be linked up into a central selling agency.

No cold storage facilities have so far been provided at St Boswells. This development will be considered later.

THE FAILURES.

Opponents of co-operative organisation will, no doubt, point to the failures, and it must be admitted that the failures have not been few. In the main, the failures have been due to the following causes: insufficient capital, inadequate turnover, bad management, failure to make provision for reserves, and neglect of one of the great essentials—the binding membership contract.

It seemed to be the idea that because a business was a co-operative one it did not require any capital and any one was good enough as a manager. Very often the members treated it in a way they would never have dreamt of treating a private trader. Present-day co-operators are profiting from the mistakes of the past. In the more recent schemes less has been left to chance. Membership contracts are now the rule rather than the exception, and it is realised that in choosing officials the best are none too good for a co-operative enterprise.

INDIVIDUALISM.

There is a mistaken idea that for a farmer to join in a co-operative scheme is to give up his individuality. The farmer prides himself on his individualism and independence, but what do they cost him? Competition from outside is so keen that we cannot afford the waste that results from competition from within. The largest and most individualistic farmer in the country is sadly handicapped in the marketing of his produce. The produce of his broad acres is of little moment in comparison with the requirements of the home market. He is powerless to meet the competition of his organised competitors, but deep down in his mind there is often an intense dislike of the idea of collaborating with his fellow-producers. He considers co-operation is a matter for the small farmer and crofter, and he gets that idea very largely from the fact that up till recently co-operation was practised in the country by the smaller producers only.

The foreign competitor long ago gave up the attempt to market his produce as an individual. He confines his attention to production, and leaves the selling to his co-operative bacon factory, creamery, or egg depot, as the case may be. He has not lost his individuality, however. There is plenty of room for developing individuality on the farm. When the only index which a farmer has to the value of his produce is his buyers' quotations, it is something of an anachronism to find so much pride of independence among farmers.

Agriculturists are fond of pointing to the losses incurred by consumers' co-operatives who have taken up farming. That may be an argument against co-operative farming, but it has nothing to do with co-operative organisation for the marketing of the produce of individual farmers.

The Bottle-Neck Theory.

It is often argued that co-operation can succeed only in an exporting country.

What about Germany and America? In these countries the farmers' co-operatives cater for home markets. We have our consuming centres in Scotland, but we have also a very considerable export trade to England.

In any case the great bulk of our produce has to compete with graded and bulked consignments from overseas, and the foreigner will have the advantage so long as we, by neglecting to grade our produce, fail to cater intelligently for the requirements of our own markets.

If the Danes can build up a marketing organisation which enables them to capture a big share of our markets, surely the British farmers, although their problem may be harder to solve, are capable of establishing the kind of marketing machinery which will enable them to get a larger share of the value of their produce.

It is now coming to be realised by every one connected with the industry that we all swim together or we sink together. As Kipling has it: "The strength of the wolf is the pack, and the strength of the pack is the wolf."

There is a growing disposition on the part of farmers to attempt to solve their problems themselves rather than rely on outside assistance.

Nothing succeeds like success. The Milk Agency, the Wool Society, and the other recently established large-scale organisations are but a beginning, but they are giving farmers confidence in their ability to handle the marketing of their produce, and they are pointing the way to greater endeavour. Some one has said that if we aim at a star, we may, at least, shoot over the fence. There may be danger in too great ambition, but the stakes of successful co-operation are worthy a high ideal and strenuous effort.

THE RELATION OF THE CHEMICAL COMPOSITION OF PASTURE TO ITS FEEDING VALUE.

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THE investigation on which the present article is based originated in a series of feeding experiments on young animals. The results of these experiments showed that the amount of mineral matter in a ration affects the rate of growth, and that an insufficiency of one or more minerals may be the cause of disease. Major Elliot, M.P., the late Under-Secretary for Scotland, who was co-operating in this research, suggested that the same principle might apply to pastures. He put forward the hypothesis that the mineral content of pastures was an important factor in determining their quality, and that on examination it would be found that good pastures would be rich in all the essential minerals, and poor pastures poor in one or more of them. He also suggested that extreme deficiency of some mineral might be one of the causes of the 'unsoundness' of the grazings in certain areas where the death-rate in sheep was unusually high.

In a preliminary investigation samples of pastures collected from various grazing areas in Scotland and England were analysed. It was found that there were marked differences in the composition of pastures from different grazings. The differences, however, were not so much in the amounts of the constituents on which the determination of the 'food units' or 'starch value' is based. The difference lay rather in the protein and mineral matter, especially in the latter. It was also found that there was a considerable degree of correspondence between the concentration of minerals and protein and the feeding value, the best grazings being richest in them, and the unsound grazings with high death-rates being the poorest.

The result of this preliminary investigation seemed to show that, provided the protein and mineral matter was taken into account, the chemical composition of a pasture gave an indication of its feeding value, and that the poor quality of certain pastures might be due not so much to lack of the fat-forming constituents, as to deficiencies of some essential mineral elements. This tentative finding opened up a field of work for biochemists and physiologists with an interest not in pasture as a crop, but on the effect of the composition of pasture on the nutrition of the grazing animal.

It was obvious that a great amount of work required to be done to determine the detailed composition of different types of pastures, and find out how far the requirements of the animal for calcium, phosphorus, sodium, chlorine, iodine, and other minerals were met by the amounts of these present in different pastures, and in the same pasture under different conditions of climate, season, and management. The work involved appeared to be too much for one institution to carry out, and it was decided that the Nutrition Institute at Cambridge and the Rowett Institute at Aberdeen would co-operate. Some of the results of the joint work of these institutions have been published in a series of papers (Journ. of Agri. Sci., vol. xvi., 1926). The Research Grants Committee of the Empire Marketing Board have made grants for this work both in the United Kingdom and in several of the Dominions and Colonies, in which investigations are now being conducted. Investigations on somewhat similar lines to those have also been carried out in America during the last two or three years. The results of all this work, much of which is not yet published, are in fairly close agreement, and at the present time attempts are being made to apply them in practice.

An important part of the investigation was the systematic collection of information existing in the literature from the beginning of the last century. It has been found that the ideas on which we are working are not altogether new. The older veterinary literature in Germany contains a number of papers in which the suggestion is made, and in some cases, indeed, evidence is brought forward to show, that deficiency of calcium or phosphorus in fodders is the cause of certain diseases in cattle. It is of special interest here to note that some of the earlier writers in the Society's 'Transactions' appear to have had the idea that the mineral composition of the pasture, as determined by the composition of the soil on which it grew, was an important factor in determining its feeding value. Some of these writers are referred to later. Only a few can be quoted here, but these articles and essays, beginning with that of James Blaikie [1] [1] in 1829, are well worth the attention of any one interested in pasture problems in Scotland. Many of them contain valuable information, and some of them express ideas which are only now being fully exploited.

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[1] Figures in brackets refer to the list of references at the end of the paper.

It will be convenient to summarise, under the following heads, the information which has been obtained both in the search of the literature and in the recent experimental work: (1) the chemical composition of pastures, (2) the effect of deficiencies in pastures on the rate of production and health of animals grazing on them, (3) the means whereby the deficiencies in pastures can be made good.

I. THE CHEMICAL COMPOSITION OF PASTURES.

The following table gives the chemical composition of different types of pastures. No. 1 gives the average composition of 24 samples of good cultivated pasture collected from different farms. Analysis of other 24 samples gave substantially the same results, so that these figures may be taken as an indication of the average composition of good cultivated pastures. No. 2 represents the average composition of 22 samples from good natural hill grazings, where the land has not been cultivated at least for the last forty or fifty years. No. 3 gives the average of 35 samples from low-grade hill grazings. No. 4 is the average of 55 samples from the Falkland Islands. No. 5 is a sample from the Island of Lewis.

TABLE I.

AVERAGE MINERAL CONTENT OF DIFFERENT TYPES OF PASTURES.

Percentage of Dry Matter.

No.		No. of Samples.	Silica—Free Ash.	CaO	P_2O_5	Na_2O	K_2O	Cl.	N	Calories per 100 gms.
1	Cultivated Pasture	24	6·64	1·00	0·74	0·25	3·18	0·95	2·83	269
2	Natural Pasture—'all grazed'	22	5·85	0·65	0·67	0·37	2·66	0·64	2·50	275
3	Poor Hill Pasture—'partly grazed'	35	5·49	0·56	0·60	0·41	2·69	0·60	2·54	271
4	Falkland Islands	55	4·56	0·29	0·54	0·31	2·20	0·70	1·95	248
5	Island of Lewis	1	...	0·29	0·24	0·38	0·68	0·12	1·34	230

It will be seen that there is comparatively little difference in the caloric or starch value of the different types, but there is a marked difference in the percentages of the different minerals. Thus in the Island of Lewis and the Falkland Islands the percentage of lime is only 0·29, compared with 1·00 in good pastures. The percentage of phosphoric acid in the Island of Lewis is only about one-third of that in good pastures. On the whole, a sample which is poor in one mineral constituent tends to be poor in the others.

In considering the chemical composition of a foodstuff in relation to its feeding value, it is necessary to have some standard which can be regarded as the ideal. It can be assumed that milk, which is nature's food for the young mammal, supplies in the right amounts and proportions all the essential constructive materials required for growth. Its composition, therefore, will correspond closely with the requirements of the young animal, and cow's milk can be taken as a standard of the ideal composition of pasture for young growing cattle and for milk cows.

The following table shows the amounts of protein and of calcium and phosphorus (the two minerals which are required in largest amounts and most likely to be deficient) in the quantity of cow's milk, and different grades of pasture referred to in Table I., which yield 1000 calories :—

TABLE II.

CONTENT OF MINERAL ELEMENTS AND PROTEIN PER 1000 CALORIES.

	CaO grams.	P_2O_5 grams.	Protein grams.
Cow's milk	2·38	3·43	52·0
Good pasture (cultivated) . . .	3·64	2·75	65·0
Natural pasture, 'all grazed' . .	2·36	2·44	56·8
Poor hill pasture, 'partly grazed' .	2·07	2·21	58·6
Falkland Islands	1·17	2·18	49·1
Island of Lewis	1·26	1·04	36·4

It will be seen that the poor pastures are deficient in both calcium and phosphorus, and the two most markedly deficient samples tend also to be poor in protein. Even the good pasture is poorer in phosphorus than the milk, but the poverty is greater in the lower grades.

The figures in Table I. are, of course, averages. Individual samples show greater variations. In some cases the percentages of calcium and phosphorus are much below the figure stated for the average. Very low percentages of phosphoric acid have been found in Africa and in Australia. Theiler [2] found percentages as low as ·04 in samples from Bechuanaland, and Kincaid [3] as low as ·099 in Australian samples. With regard to calcium, Ingle [4] [5] found the average of six samples of hay from certain districts in South Africa to be only ·135 per cent compared with 1·0 in good pastures. As great deficiencies have been noted with regard to other minerals. Thus in a sample of pasture from a district in Scotland the percentage of chlorine was as low as 0·015, compared with 0·95 in good pasture. These figures show that there may be great differences in the mineral content of a pasture without corresponding differences in the percentages of the organic constituents which are used to calculate the 'starch value' or 'food units.'

When the samples of pasture were collected information was obtained from the shepherds and farmers on the feeding value of the grazings from which the samples were taken. The carrying capacity of the grazings, the rate of growth of young ruminants, and in the case of sheep the percentage fertility and health, are roughly parallel with the amount of soluble mineral matter in the pasture. Thus the samples of poor hill grazings were obtained chiefly from the Western Highlands, where the sheep are small, the percentage lambing comparatively low, and the average mortality over 10 per cent. In the Falkland Islands, from which the worst samples were taken, the fertility and the state of nutrition of the sheep appear to be even worse than in the Western Highlands of Scotland (Munro). The effects of deficiencies in the pastures are, however, considered in greater detail below.

The chief factors which affect the mineral content of pastures are (1) the nature of the soil, (2) the species of plants, (3) the stage of growth, and (4) the amount of soil moisture.

Nature of the Soil.—There tends to be a balance between the composition of the soil and the composition of the herbage. A soil poor in mineral nutrients produces a pasture poor in these. This is shown by the many analyses which have been done of pastures, and of the soil on which they grew (Lawes and Gilbert) [6]. It is shown even more conclusively by the effect of altering the chemical composition of the soil by the application of mineral fertilisers. The following table shows the effect of application of lime and phosphates to (*a*) poor moorland soil and (*b*) good cultivated soil :—

TABLE III.

Percentage of Dry Matter.

Fertiliser applied.	Pasture on Poor Moorland Soil.		Pasture on Good Cultivated Soil.	
	CaO.	P_2O_5	CaO	P_2O_5
	%	%	%	%
Nil (control) . . .	·59	·29	1·16	0·96
Lime	·77	·30	1·37	0·92
Superphosphate . .	·94	·71	1·16	0·93
Lime plus Superphosphate	·98	·73	1·56	0·92

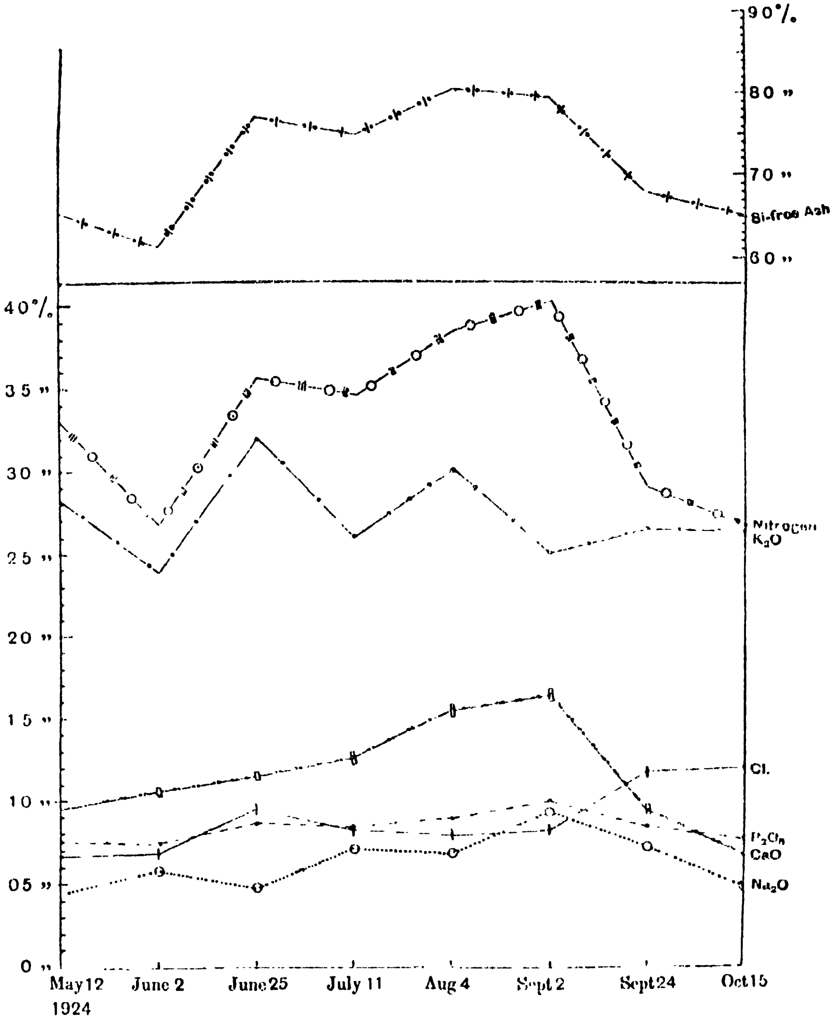
The enrichment of the soil in these nutrients has been followed by an enrichment of the pasture. It will be seen that the difference is more marked in the case of the poor land. There the phosphorus content of the pasture has been increased from ·29 to ·73 per cent, and the lime content from ·59 to ·98 per cent. The effect of the fertiliser has been to produce a type of pasture the composition of which more closely resembles that of good cultivated pasture.

The fact that the soil had an effect on the composition of the pasture, which in turn affected the grazing animal, was recognised by some of the early writers. One of the most interesting papers on this subject appeared in the 'Transactions' in 1875, under the title of "The Influence of Geological Formation on the Health and Development of Sheep," by J. M'Millan [7].

Species of Plant.—Clovers and other legumes are much richer in minerals, especially in calcium, than the grasses. The percentage of lime in clover is usually about 2 to 2·75—more than double the amount found in grasses. The addition of clover, or other legumes, to grasses increases the value of the grazing. This is due to some extent to the fact that the two together, in the proper proportions, make a well-balanced diet. It is probable, however, that an excess of legumes would tend to upset this balance by supplying an excess of calcium. It would be of interest to have some observations made on the relative value of pastures, with different amounts of clover, to determine whether there is a limit beyond which the increase of clover does harm, rather than good, from the point of view of the health and rate of production of the grazing animals.

Stage of Growth.—Both the mineral and the protein content of pasture is highest at the stage of growth at which there is the maximum amount of growing green leaf. As the plant becomes older there is an increase in the fibrous matter in the stems and in the fat and carbohydrate in the seeds, and a decrease in the mineral matter, some of which is returned again through the roots to the soil. The graph on following page shows the seasonal variation in the protein and soluble minerals in samples of Scottish pasture cut from the same area during 1926.

Amount of Soil Moisture.—The amount of soil moisture has an effect on the mineral composition of the plant, especially upon the phosphorus content. In drought the percentage of phosphorus in the pastures falls very low, in some cases to less than a tenth of the normal. Excess of moisture, on the other hand, as in water-logged lands, tends to promote the growth of types of plants which are poor in calcium.



It is interesting to note that the practices of good farming in connection with the application of fertilisers, draining, and the use of suitable seed mixtures, which are based on long practical experience, and are carried out for the purpose of producing good pastures, have the effect of producing a type of pasture rich in the essential minerals. Thus the results of generations of experience and of technical research are mutually confirmatory.

II. The Effect of Deficiencies in Pastures on the Rate of Production and Health of Animals Grazing on Them.

It is now well known that mineral deficiency in pastures can be so extreme as to cause disease. Sir Arnold Theiler [8] and his co-workers have shown that in certain parts of South Africa lack of sufficient phosphorus in pastures is the direct cause of a disease called 'Styfsiekte,' in which the animals become unthrifty and emaciated, and have a stiff stilted gait. It is also the indirect cause of a disease called 'Lamsiekte.' A condition similar to 'Styfsiekte' has been noted on rough grazings both in America and in parts of the Continent. In most of the cases which have been investigated it has been found that pastures on which the affected animals were grazing were deficient in phosphorus.

Extreme poverty in calcium appears to be the cause of soft or brittle bones. In some hilly districts in the Western Highlands and in the South-West of Scotland a condition known as 'Croitich' is found in sheep. The chief feature is fragility or softening of the bones. The following table compares the chemical composition of the pasture from an area in which this condition occurs with that of a good, healthy, hill pasture:—

TABLE IV.

Results Calculated as Percentages of Dry Matter.

	N	CaO	P_2O_5	Na_2O	K_2O	Cl.	Total Ash.	Silica-free Ash.
Healthy hill pasture	2·5	0·65	·67	·37	2·66	·64	7·18	5·85
'Croitich' area .	2·05	0·21	·29	·12	1·51	·52	5·33	2·82

The pasture of the 'Croitich' area is very poor in both calcium and phosphorus, though the former is the element which is relatively most deficient.

In some districts deficiency of other minerals is the cause of disease. A curious disease, known as 'Bush-sickness,' has been investigated in an area in New Zealand. It has been found by Aston [9] and his co-workers that the pasture in that area contains less iron than normal pasture, and lack of iron is suggested as the cause of the disease. A somewhat similar condition occurs in certain parts of East Africa. 'Pining' in sheep in certain parts of the South of Scotland presents similar features to those of 'Bush-sickness' in New Zealand, and is possibly due to the same cause. In some districts, notably in North America, it has been found that lack of iodine in the pastures is the cause of goitre in cattle and sheep.

In the case of calcium and phosphorus, which are required in relatively large amounts by herbivora, it can be shown that the amounts of these present in pastures on which diseases like 'Styfsiekte' occur, are less than the amounts required to maintain the animals in health, and it has been definitely proved by feeding experiments that if the animals are fed on inorganic substances like bone meal or mineral salts, which provide what is lacking in the pastures, these diseases are prevented or cured. As we have little information upon the requirements of animals for minerals other than calcium and phosphorus, it is difficult to prove absolutely that deficiency of those minerals, especially those like iron and iodine which are required only in small amounts, is the cause of these diseases. It seems to be proved beyond doubt, however, that the direct administration of small amounts of iron prevents or cures 'Bush-sickness' and similar conditions, and the administration of iodine prevents the occurrence of goitre in cattle and sheep in goitre areas.

It is only in certain limited areas that deficiencies of pastures are so extreme as to cause disease; a degree of deficiency may exist, however, which, though not sufficiently marked to cause disease, yet limits the rate of growth or production of the grazing animal. Thus, for example, in Nigeria, where the pastures are poor in both calcium and phosphorus, cattle are not full-grown until they are about five or six years of age. The feeding of the right kind of mineral salts to animals grazing on poor pastures such as these is followed by increased rate of growth in young animals and increased milk production in cows. Sir Arnold Theiler [8] and his co-workers found that the administration of bone meal and common salt, which supply calcium, phosphorus, sodium, and chlorine which are all lacking in the pastures, increased the milk yield of cows by over 30 per cent. The rate of increase in weight of growing animals was even more marked, as is shown by the following table, which gives the gains in two groups of young cattle grazing on the same phosphorus deficient pasture. One group received 3 oz. of bone meal per day :—

	Bone Meal.		Nil.	
	No 518.	No. 502.	No. 475.	No. 528.
Increase in weight in lb. (sixteen months)	445	422	146	154

On cultivated pastures in this country it is well known that in some districts the stock grow faster and bigger than in others. A chemical examination would most probably show that the mineral content of the pasture on which the most rapid rate of growth is obtained was better adapted to the requirements of the growing animals.

There appears to be a balance not only between the vegetation and the soil, but between the vegetation and the grazing animal. A pasture rich in calcium, phosphorus and other substances required as constructive material for forming bone and flesh will support a rapidly growing breed. A pasture of poorer composition may support a slower-growing breed, but if an improved breed with a great capacity for growth be introduced, the rate of growth must be slowed down to correspond with the composition of the pasture, or, failing that, diseases of malnutrition will develop. This frequently occurs when specimens of improved breeds, with great capacity for growth and milk production, are introduced into areas with poor pasture, with the idea of grading up the native stock. It has been found that as the grading-up process proceeds the rate of mortality increases. This is a natural process tending to the elimination of the strain with a greater rate of production than the pastures can support. Du Toit [10] has recently called attention to this in connection with West Africa. He points out that the pastures there are so poor in both calcium and phosphorus that they will not support modern improved breeds, and that before attempts are made to improve the breed means must be taken to ensure that the mineral content of the pasture is increased.

It is interesting to note here that the general results of some of these more recent investigations have been anticipated by veterinarians on the Continent, and also by some observers in this country. Thus M'Millan [7], in the article in the 'Transactions,' referred to above, says: "When sheep have to feed upon grass which does not contain all the earthy matters required, they will become poor in quality and predisposed to disease." That sentence expresses the whole principle. The work of recent years has, to a large extent, only amplified that knowledge, especially by finding out the definite factors which are deficient and the effects of the individual deficiencies.

III. MEANS WHEREBY THE DEFICIENCIES OF POOR PASTURES CAN BE MADE GOOD.

The chemical composition of the plant tends, within limits, to reflect the chemical composition of the soil. A soil rich in mineral nutrients supports a herbage rich in these, and, as we have seen, the enrichment of the soil by the application of mineral fertilisers is followed by an enrichment of the pastures. Hence the chemical composition of pastures on the same soil will vary with changes in the composition of the soil. The continuous removal of animals, or animal products such as milk and wool, produced in an area, without any corresponding replacement, impoverishes the soil. In some parts of the world the evil effects of this process of depletion are very marked. Thus Richardson [11] has pointed out that in Australia deterioration in pastures, with a resulting deterioration in the animals, has been going on for several years, due to the fact that the soils are becoming exhausted. He estimates that 2,000,000 tons of superphosphate would be required to replace the amount of phosphorus which has been taken away in wool, mutton, and milk. A similar slow process of depletion has been taking place during the last 150 years or more on the hill grazings in Scotland. The effect of this impoverishment of hill pastures in Scotland has been pointed out by several writers in the 'Transactions,' notably by Professor Johnston [12] in 1845, Latham [13] in 1883, and Douglas [14] in 1896. The same process, of course, takes place on cultivated pastures, but it is periodically arrested by the manuring and fertilising which accompanies the growing of the crops before the new grass is laid down.

Little need be said about the application of mineral fertilisers such as lime, slag, superphosphate, and kainit, which are applied in the ordinary routine of good farming. These enrich the soil, and consequently raise the mineral content of whatever species of plants are growing. Further, they promote the growth of species which are naturally rich in minerals. These are the species with abundance of leaf, which give the desired good sole of grass. The application of these fertilisers even without cultivation is often followed by spectacular results. In the natural pastures of Australia and New Zealand it is not uncommon to find that after the application of phosphates the carrying capacity is doubled, and even in some cases quadrupled. In this country results almost as striking were obtained by Somerville [15] with the application of phosphates on natural grazings.

The effect of fertilisers, of course, varies both with the nature of the fertiliser used and the nature of the soil to which it is applied, and in some cases disappointing results have been obtained. Unfortunately, mere chemical analyses of the soils does not yield all the information required to determine the proper kind of fertiliser to use. There is still a great deal both of research and practical experimental work to be done in connection with the use of fertilisers in pastures.

Apart from the application of fertilisers, the composition of the pasture may be affected by changes in the moisture content. The beneficial effects of the draining of water-logged land are fully appreciated. Water-logged soil favours the growth of plants poor in certain minerals, and the removal of the excess water is followed by the growth of richer plants.

Irrigation with springs coming from a depth has had excellent results in some cases, where the water brings up in solution from the sub-soil nutrients which have been depleted from the surface soil. It is only in special cases, however, where this method can be extensively used.

The application of fertilisers with or without cultivation is the most direct and natural method of making good the deficiencies in the pastures. There are, however, large tracts of land where even surface dressing is uneconomical and impracticable. On such grazing it is theoretically possible to feed direct to the animals whatever substances are lacking in the pastures. As has been shown, this method of making good deficiencies has met with remarkable success in some of the Dominions. The amount of material required is small. In the case of sheep on deficient hill grazing in this country, somewhere in the neighbourhood of 10 or 12 lb. of material per animal is probably sufficient for a whole year. The composition and the amount of the material fed depends, of course, upon the composition of the pastures. Unless there is a marked deficiency in the pastures, supplementary feeding of mineral salts will not be followed by any improvement; and even if there is a marked deficiency, unless the substance given supplies what is deficient it will not do any good. In some recent work of this kind it has been shown that in the moderately good hill pastures in the South of Scotland where the pasture, though not of first-class quality, showed no marked deficiency, the feeding of small amounts of minerals had no very definite effect. On the other hand, in certain areas in the West Highlands where there was a marked deficiency of lime, the feeding of the mineral salts appeared to have a beneficial result out of all proportion to the cost of the material.

This method of making good deficiencies, while definitely established in over-seas parts of the Empire as a profitable practice, is only at the experimental stage in this country. If found practicable it will prove of considerable economic importance, because an immediate return is obtained for the material used, and as not more than half of what is fed is built into the skeleton and tissues of the animal, the other half is left on the ground in the excreta. Hence if the practice were continued there would be a gradual enrichment of the grazings. Although the rate of enrichment would be very slow, still it would tend to change the slow downward process of depletion to a slow process of enrichment.

It is of interest to note here that as early as 1875 M'Millan [7], already referred to, suggested this method of making good the deficiencies of pastures. He says: "Whenever soils and water do not naturally give all the necessary salts to maintain the stamina of life, through the food and water, these may be supplied by artificial means." Then he gives an account of the use of a mineral mixture, not unlike some of those being used at the present day, which had been employed as a means of increasing the resistance of animals against an infectious disease.

PRACTICAL CONSIDERATIONS.

Management.—Some of the results of research which have been discussed have a direct practical bearing, and are worthy of the consideration of the stockman. Thus, for example, the correlation between the composition of the pasture and its stage of growth raises the question of management. It is desirable to keep the plant at the short leafy stage. This can be done by heavy stocking. But the carrying of a heavy stock involves the feeding of the soil to ensure vigorous growth of pasture. In the Hohenheim method, which is at present being subjected to large-scale trials, the grazing area is divided into sections which are grazed in turn by a number of animals sufficient to eat a section bare in about ten days, after which they are moved on to the next, the sections being grazed in rotation. Liberal application of fertilisers promotes early and prolonged active growth. This feeding of soil, combined with close grazing, prolongs the period during which the pasture is of high nutritive value. From the point of view of yield per acre, this system of management is a distinct advance on the present method of manuring at long intervals and continuous grazing on the same area with a smaller number of animals. This method has been practised in New Zealand for many years, and indeed in the good grazing districts in that country is now regarded as ordinary good farming practice.

Top-dressing cultivated pastures.—The liberal top-dressing of pastures with fertilisers prevents the deterioration of cultivated pastures. In some cases at least it has been found that the third or fourth year pasture is more valuable than the first. There is no need, therefore, to break up the pasture merely for the purpose of renewing it. On some soils it may be necessary ultimately to cultivate the land to alter its mechanical state, but there would be no need to break it up merely for the purpose of ploughing in manure. If, instead of allowing this pasture to suffer depletion and deterioration, the soil is enriched and the pasture improved by a systematic top-dressing, the extension of the pasture area is not an unmitigated evil, because it would be accompanied by an increase in the number of farm animals kept, and the accumulated fertility in the soil would be available for crop growing if and when required.

Fodder.—Another practical problem associated with difference in composition at different stages of growth is the conservation of fodder. As the plant matures the chemical composition changes, and the older plant is poorer in essential nutrients than the young, leafy, vigorous-growing plant. Hay has therefore not the same feeding value as young grass, as is, of course, well known. At Cambridge a new method of preserving fodder is being tried. Pasture is being cut at frequent intervals during the rapid growing stage, and compressed into grass cakes. The cakes have a very high feeding value. They keep well, and are easily handled. Unfortunately we have so far no information as to the cost of production.

Deterioration.—In Scotland one of the most important practical questions in connection with pastures is the depletion of rough grazings, especially in the Highlands. Generation after generation of sheep and cattle have been fed off the hills with little or no return of the lime, phosphorus, and other minerals removed in their carcases. As a result of this depletion the pastures have deteriorated and the stocks have been reduced. An inquiry instigated by Sir R. Greig has brought out the fact that in Argyll, Inverness, Ross and Cromarty, Sutherland and Perth—*i.e.*, the counties with the largest proportion of mountain and heath grazing—there has been during the last 50 years a decrease of 11·5 per cent in cattle and 22·7 per cent in sheep, whereas, for the rest of Scotland, where more manures, fertilisers and feeding stuffs are used, there has been an increase of 11·2 per cent in cattle and 19·5 per cent in sheep.

The reduction of the stock, especially cattle, has allowed increasing amounts of the herbage to remain uneaten. In the autumn this fibrous vegetation, poor in mineral matter, dies down into a water-logged spongy mat. Each year the mat tends to increase in thickness, separating off the young grass of the spring further and further from the true soil. There seems little doubt that this process, which is essentially the process of bog or peat formation, is going on in many parts of the moors of Scotland at the present day.

As the pastures deteriorate, the quality and health of the stock tends to go down, and it is said that the land is suffering from over-stocking. From one point of view this is true, because there is not sufficient good grazing left to maintain the original number of stock. The policy of reducing the stock is, however, a policy of despair that can only end in the pastures becoming still worse and the stock being still further reduced.

If this process of slow deterioration is to be stopped, we must adopt a policy of feeding the land or the stock or both. There are undoubtedly large areas which are not worth trying to improve by any method known at present. Other parts, however, might be improved by top-dressing suitable small patches here and there throughout the grazings, so that these patches would grow a mineral-rich pasture which would help to balance up the surrounding mineral-poor pasture. This suggested method, of course, presents difficulties. In some grazings the chief difficulty would be to remove the thick fibrous mat of useless vegetation before applying the fertilisers, so that the material applied would reach the true soil. The other suggested method of feeding to the stock small amounts of substances deficient in the pasture can be carried out in any area. Some preliminary work in both of these directions has been carried out during the past three years, and the results have been sufficiently encouraging to warrant the work being extended.

Fortunately there has recently been a greatly increased interest in problems connected with the improvement of rough pasture, and it is likely that in the immediate future all available practical and scientific information will be applied in experimental tests to devise ways and means whereby the poor hill pastures in this country can be improved.

Note.—Further information on the subject of this article and a full bibliography is contained in a review entitled 'The Mineral Content of Pastures' (London: Lewis), which was written at the request of a Sub-Committee of the Civil Research Committee, and circulated to research workers and officials within the Empire who are known to be interested in pasture problems. The writing and circulation of the review was carried out as part of a scheme of pasture investigation promoted by the Research Grants Committee of the Empire Marketing Board.

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MILK FEVER.

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Of the numerous mysterious diseases that attack livestock few have excited such interest or aroused such speculative controversy as milk fever in cows.

The dramatic suddenness of its onset in an animal that had had the appearance of perfect health; the severity of the attack which, untreated, results in a rapidly fatal termination; the specific efficacy of mammary inflation, were features of the disease as attractive and intriguing as they were baffling and inexplicable.

So many hypotheses have from time to time been formulated to explain its nature that milk fever, like puerperal eclampsia in women, to which it bears some resemblance, has become known as the "Disease of Theories"; but it is only in recent years that experimental test has been applied to the problem.

Early Records.

It is a remarkable fact that a disease of such importance as milk fever was first recorded only as late as the end of the eighteenth century, for our first record seems to be that of Eberharhdt, who noted its occurrence in 1793.

In England, John Price refers to the disease in 'The New Useful Farrier and Complete Cow Leech' (1806), and in the following year Skellett, another early English veterinarian, gave a good clinical description in a work entitled 'A Practical Treatise on the Parturition of the Cow.'

In French veterinary literature the disease seems to have first received notice as late as 1837, when Fabre described it in his 'Vétérinaire Campagnard.'

These facts are not of historic interest alone. That the disease made its appearance only in comparatively recent times has a distinct bearing upon the nature of the malady, and, as will be shown later, offered a fruitful clue to the elucidation of its cause. It will be observed that its appearance corresponded with the commencement of the intensive breeding of the cow as a producer of milk.

The disease soon became generally recognised, and was investigated by numerous authorities; but at this period milk fever was studied only in its clinical aspects, and appears to have been frequently confused with septic puerperal affections, until the publication of Professor St Cyr's 'Traéti d'Obstétrique' (1877), in which the conditions are clearly differentiated.

Occurrence.

It was at one time believed that milk fever attacked the cow exclusively, but it has since been shown that in some districts the ewe is commonly affected, and a few cases have been recorded in the milch goat and in the sow.

In the great majority of cases the cow is attacked within forty-eight hours after calving, although the disease may make its appearance while the act of parturition is actually in progress. A number of cases also occur during the last few days of pregnancy; in these last, however, it has been observed that the cow has always commenced lactation before the onset of the malady. Again, it is not uncommon to meet with a condition that appears to be identical with the parturient type of milk fever at any time during the lactating period and even in the dry cow, and there seems to be a special susceptibility to these late attacks during the periods of "bulling."

That such factors as excitement, undue exertion, and fatigue also play a part in the production of the disease is suggested by the fact that newly calved cows that have been subjected to a journey by road or rail appear to be predisposed to attack.

In ewes, milk fever (or "lambing sickness," as it has been called) has markedly increased in its incidence during recent years, and it may be said that the same general conditions of occurrence that are met with in the cow also obtain in the ewe.

Predisposing Causal Factors.

1. *Distribution.*—Milk fever occurs most commonly in certain districts, and veterinary practitioners have frequently noticed that individual farms furnish many cases of the disease, whereas it is seldom encountered in others. Again, as many as five or six cases may occur at short intervals in a herd in which previously the affection was rarely seen. This may indicate the presence of an agent to which all the animals are exposed and to which certain are susceptible, or conversely, the absence of some factor, the presence of which tends to prevent an attack. It has now been demonstrated that, in all probability, such factor is concerned with the maintenance of the normal level of calcium in the blood. This point will be fully discussed later.

2. *Age.*—Cows are most commonly attacked between the fifth and the tenth year of age. The following table (quoted by Professor Law) is compiled from veterinary records in Denmark and Bavaria, and clearly indicates the age incidence :—

Age—years . . .	3	4	5	6	7	8	9	10	11	12	13
Number of cases .	8	21	65	160	171	202	117	124	44	70	78

It will be observed that the commencement of the period of greatest susceptibility corresponds with the period of the greatest milk-yield. Heifers are very rarely attacked.

3. *Susceptible Types of Cow and Condition of Keep.*—Deep-milking cows are most liable to attack, and especially those which have been the subject of generous feeding towards the end of pregnancy. The danger of a rich nitrogenous diet in the last stage of pregnancy has long been recognised, but many cases occur in cows at pasture, especially on lush rank grass, such as one finds in sewage meadows ; and it has been noticed that on soil deficient in lime the incidence of milk fever is much higher in grazing cows than when these are stable fed.

The practice of putting cows on a subsistence ration of straw and turnips for the last few weeks of pregnancy is one which for long has been practised among Scottish dairy farmers, who believe that the method has a distinct value in the prevention of the disease. It must be said that the efficacy of this practice as a preventive measure is open to doubt.

On the other hand, Boutflеur has recently declared that the practice of feeding concentrates heavily during the last term of pregnancy (" steaming up ") is a valuable preventive, provided that the bowels be kept lax as parturition approaches. This again has been recently adversely criticised, and it is stated that " steaming up " has actually led to an increased incidence in milk fever.

It is difficult to assess the importance of this or that condition of keep in its bearing on the production or the prevention of the disease in the absence of the requisite data, which can only be compiled from prolonged and careful observations upon selected herds ; and since there is such divergence of opinion, the question must for the present remain an open one.

4. *Parturition.*—As has been indicated, the great majority of cases are encountered within forty-eight hours after calving. With very few exceptions parturition has been easy and un-

complicated, although milk fever has also been observed in association with abortion, and in cases of retention of the after-birth.

It has frequently been noted that the period of non-lactation which precedes calving has been prolonged.

5. *Weather.*—Attempts have been made to associate the disease with various types of weather, and it has been noted that periods of hot, muggy, thundery weather associated with a fall in barometric pressure are likely to produce a crop of cases.

6. *Influence of Milking.*—The complete emptying of the udder after calving is an important causal factor. While in many cases the milk secretion is markedly diminished prior to the appearance of the notable symptoms, the sudden and complete withdrawal of milk may precipitate the onset of the attack. On the other hand, the avoidance of complete milking for the first seventy-two hours after calving (the milk being drawn off in small quantities at short intervals) is perhaps the most valuable means we at present possess in the prevention of the disease.

Cows suckling their calves are seldom attacked, and it is probably because of this that milk fever is of rare occurrence in the beef breeds; but its comparative rarity in these may be partly explained upon the ground that they have not developed the deep-milking qualities of dairy cows.

7. *Liability to Recurrence.*—As is well known, milk fever shows a tendency to recur with each parturition. This does not necessarily mean that one attack renders the subject more susceptible to another; it rather suggests that some factor which ordinarily plays an important part in the resistance of the body to the disease is absent.

Symptoms.

The earliest symptom may be seen in diminution of the appetite and decrease in milk secretion without obvious cause. This may exist for twenty-four hours before the characteristic symptoms develop. These, in the earliest stage, are shown in restlessness accompanied by nervousness and excitement. The animal at this stage is described by the byremàn as "straight on her hocks"—that is, the hind-legs give the impression of being moved stiffly with comparatively little bending of the hock joints. The cow bellows; looks round to her flanks; the eyes stare; the nostrils are dilated; she moves from side to side in her stall with a "paddling gait."

In some cases spasmodic contraction of various muscles and groups of muscles is observed. The excitement increases in its intensity; convulsive seizures may cause the animal to throw herself about in the stall and to fall to the ground, from which she rises with difficulty. There is now marked trembling and purposeless inco-ordinate movement, and if the animal be unrestrained her gait is staggering and blundering. The difficulty of keeping her stance becomes more and more acute until, after falling and making several ineffective attempts to rise, she remains down.

These symptoms of acute nervous disturbance give place to a condition of somnolence, which, usually rapidly, develops into complete coma. The cow is now insensible to outside impressions. Unless supported she lies collapsed, with the legs drawn up to the belly, or thrust out stiffly. The head may be drawn round to one side, with the side of the face firmly pressed against the shoulder. If the neck be straightened forcibly, the head upon release immediately returns again to its former position. If the cow be lying flat upon her side, the head and neck are usually fully extended so that an almost straight line could be drawn from the chin to the dewlap.

The eyes are glassy, the breathing stertorous and laboured, and while the pulse is strong and frequent in the early stages, during the phase of coma it becomes progressively soft and weak.

Stasis of the stomach and bowels, which constitute a distinct feature of the disease, results in gaseous distension of the abdomen, with accompanying constipation. In several cases complete paralysis of the bowels is present.

In a considerable proportion of cases the early phase of excitement and delirium is not pronounced, and after a short period of nervousness and excitement, accompanied by the characteristic stiff paddling gait, the case rapidly lapses into coma. In point of fact, the nervous phase may be so short and slight in its manifestation that it passes unobserved.

Upon the appearance of the disease, if the affected animal be in a double stall, her neighbour should be removed in order to give the patient more room.

Care must be taken that the cow does not injure herself should convulsive seizures develop, and during the later stage when sensibility is lost, it is important to remove the binding chain and have the cow propped up in a more or less natural position by means of sacks filled with straw. It should be specially remarked that at this stage there is an entire absence of the "swallowing reflex," which means that draughts of medicine administered by the owner are not naturally swallowed, and there is grave risk of such fluids entering the windpipe and setting up an inhalation pneumonia.

The administration of any medicine by the mouth must therefore be avoided.

The further treatment of the case should be left to the veterinary practitioner. The writer has known several serious cases of mammitis follow upon unskilled attempts to insufflate the mammary gland.

THEORIES UPON THE NATURE OF MILK FEVER.

Apart from its scientific interest, a discussion of the various theories upon the nature of the disease, which during the last hundred years have been from time to time advanced, may serve to illustrate the extraordinary diversity of view to which this mysterious malady has given rise in the minds of veterinarians throughout Europe and America.

Although many of the theories cannot stand examination under the searching rays of modern knowledge, they attracted wide attention at the time of their publication. Nor must they be regarded as worthless, for it was because of their study and the elimination of false hypotheses that we have been gradually led to an understanding of the essential nature of milk fever.

The theories may be conveniently grouped as follows :—

1. *General Inflammation.*

In Britain the early authorities believed milk fever to be of an inflammatory nature, and this theory may be regarded as the first to hold the field. Thus Clater ('The Cattle Doctor,' 1825) states that the cause is "an inflammatory state of the udder, which is frequently induced by the animal taking cold, and from a redundancy of blood in the system. About the second or third day after calving a much greater quantity of blood than usual is determined to the udder for the secretion of milk; but when the udder is inflamed this act does not take place, and the blood is in consequence transferred to some other parts, as the peritoneum, the bowels, kidneys, &c., which deranges the whole animal frame and produces milk fever."

Delabere Blaine (1832) believed it to be a general inflammatory condition resulting from arrestment of the milk secretion.

Youatt (1834) states that the disease is primarily an inflammation of the womb or of the peritoneum, but "soon becomes a general inflammatory state as rapid in its progress as it is violent in its nature, and speedily followed by a prostration of vital power that often bids defiance to every stimulus."

2. *Derangements of the Central Nervous System.*

Contamine believed that at the time of calving there existed an accumulation of nervous energy which was utilised during the act of parturition. If the calving were very easy, what he called the "nervous influx" was diverted to the brain and cord, and in some unexplained manner produced inflammation of these structures. According to Köhne the disease represented a primary paralysis of the ganglionic cells of the sympathetic nervous system, which extended eventually to the spinal cord and to the brain. Günther and Félizet saw the initiation of the malady in the mental perturbation which may follow the removal of the calf from the dam.

3. *Cerebral Anæmia.*

Franck in 1871 was the originator of the theory of cerebral anæmia.

He supposed that after parturition the contracting uterus forced back its supply of blood into the general circulation. A sudden excess of blood resulted in the tissues, and exudation occurred from the cerebral blood-vessels; this exudate, by pressure on the vessels, caused their obliteration, and so produced anæmia of the brain.

This notion was altogether too fantastic; but the idea that the disease was a cerebral anæmia received wide acceptance, and the theory under various modifications has found favour with numerous observers down to the present day.

Glass suggested that during the later stages of pregnancy the gravid uterus exerted an excessive pressure upon the abdominal and thoracic organs. After the birth of the calf this compression was suddenly removed, and thereupon an influx of blood occurred into the abdominal and thoracic vessels; the congestion which followed drew blood from the brain, resulting in a cerebral anæmia.

Aronsohn believed that cerebral anæmia resulted in consequence of the congestion which occurs in the udder at the commencement of milk secretion.

M'Connell attributed the supposed cerebral anæmia to a constriction of the cerebral vessels following upon a condition of "shock" produced by the sudden emptying of the udder by hand. Similar theories were enunciated by Zehl and others.

Billings supposed that an exaggerated excitability of the nervous apparatus of the uterus provoked in a reflex way a spasm of the small arteries of the brain and kidneys, and as a result anæmia of these organs occurred.

Meier, in support of the cerebral anæmia theory, claimed to have demonstrated a resemblance between the symptoms of milk fever and those which occur in a cow suffering from severe internal hæmorrhage.

Sonnenberg believed that a cerebral anæmia in milk fever resulted from a disturbance of the centres in the brain which control the normal contraction or dilatation of the blood vessels, and argued that the factor responsible for this disturbance was contained in the milk, a certain quantity of which was, he believed, reabsorbed into the blood in milk fever. In support of this theory, Sonnenberg injected milk into the blood of rabbits, and produced symptoms which he believed to be due to cerebral anæmia. Delmer and others combated Sonnenberg's conclusions, and pointed out that the symptoms produced in the rabbits were not comparable with those of milk fever. It is now permissible to believe that Sonnenberg's rabbits actually suffered from a condition known as "anaphylactic shock."

Gratia and Van Den Eeckhout sought to put the cerebral anæmia theory to the test by means of an acute experiment. Using a heifer, the two carotid arteries which supply blood to the head were exposed and clip forceps applied so that no blood could pass through them. In this way the brain was temporarily deprived of its main blood supply, yet no serious symptoms developed; and throughout the experiment, which extended over nearly two hours, the animal continued to feed. Attempts to reproduce the disease by the removal of large quantities of blood from normal cows have failed.

4. *Cerebro-Spinal Congestion.*

Violet thought that the disease represented a cerebral congestion. According to his theory the birth had been too rapidly and too easily effected. The heart, no longer called upon to meet the claims of the fœtal circulation, functioned more powerfully than was necessary, so that the blood was driven with greater force upon the central nervous system. Vascular ruptures and consequent hæmorrhage (apoplexy) were the possible result.

Professor Barlow of Edinburgh (1844) held that a disturbance in the sympathetic nervous system led to arrest of secretion and a general congestion, especially of the brain and spinal cord. The acceptance of this idea as offering the most satisfactory explanation of the cause was strongly advocated by Professor William Williams.

Sanson accepted this idea, but explained the hypothetical cerebral congestion as Franck explained the equally hypothetical cerebral anæmia, by assuming that the contracting uterus forced a large volume of blood into the general circulation.

Noquet declared the disease to be due to a congestion of the nervous system resulting from blood plethora, repletion of the stomach at the moment of parturition, and intensity of "the fever of lactation."

Campbell believed the congestion due to the maternal anxiety and distress following the removal of the calf.

Ayrault was of opinion that a cerebro-spinal congestion is determined by lowering of temperature acting directly on the womb, from which the blood is expelled.

Trasbot held that the disease resulted from "chill," which provoked constriction of the superficial blood-vessels, and so diverted the blood to the spinal cord, which now became congested.

5. *Apoplexy.*

Festal regarded milk fever as an apoplexy, and declared that he was able to demonstrate the presence of ruptured blood-vessels in the brain. He regarded plethora as the cause.

Walley sought to establish a relationship between milk fever and the peculiar disposition of the cerebral blood-vessels which obtains in bovidæ (the so-called *rete mirabile*), which he believed should predispose the cow to cerebral congestion. Walley suggested that the constipation which is so marked a feature of the disease could be regarded as a contributory cause in so far that apoplexy might follow upon the animal's straining to pass fæces.

Gerrard stated that in 75 per cent of cases lesions of apoplexy could be found.

Beart Simonds reached the definite conclusion that the disease was of the nature of an apoplectic condition of the brain and spinal cord, and insisted upon the correctness of the name "parturient apoplexy."

6. *Fat Embolism.*

The theory of apoplexy and the ingenious theories which were built upon vague speculations that the malady arose from blockage of the cerebral blood-vessels by fat globules absorbed from the milk (fat embolism) later fell in face of the rapid and complete recoveries which follow mammary inflation.

7. *Æræmia.*

Upon observing the presence of gas in the cerebral vessels in cows which had died from milk fever, Carsten Harms of Hanover deduced that this æræmia was the cause of the disease, and resulted from the introduction of air into the uterine blood-vessels which had been ruptured during the act of calving.

Theories of Infection.

8. *General Infection.*

Following upon the researches of Pasteur, and the discovery that many diseases of then unknown origin were due to the presence of pathogenic microbes, it was natural that numerous theories which sought to attribute milk fever to microbial invasion should be enunciated. Thus, following Harrison-Thomas, who suggested that the disease was a septicæmia (a blood poisoning by virulent microbes), Pottiez and Conreur discovered in the blood a streptococcus which they considered to be the cause. This micro-organism, while pathogenic to laboratory animals, failed, however, to reproduce the disease when injected into cows.

9. *Bacterial Infection of Uterine Origin.*

In 1878 Rainaud de Gaillac had postulated a toxæmia due to absorption by the blood of poisons generated in decomposition of the lochia or second cleansing.

The theory was elaborated by Schmidt-Mülheim (1885), who recognised in the symptoms of milk fever a resemblance to those of a form of ptomaine poisoning known as botulism. This theory was adopted by Friedberger and Fröhner in Germany, but received little support.

This idea, however, has recently been brought forward again by Pugh (1925), who suggested that milk fever results from the absorption of botulism-like toxins, to which the animal is predisposed by the presence of a ketosis (or auto-intoxication produced by the products of the faulty breakdown of fats in the liver).

Professor Nocard, after declaring his belief that the disease was infectious, discovered a pus-forming microbe in the lining membrane of the uterus, and held that this organism played an important part in its causation.

Guillebeau and others have incriminated various micro-organisms found in the uterus with milk fever.

Hartenstein referred the cause to absorption of certain products elaborated in the muscular layer of the uterus, and especially to uric acid formed during the act of parturition.

10. *Infection of Mammary Origin.*

The theory of intoxication due to poisons elaborated by micro-organisms in the udder has had numerous partisans. It was Thomassen (1880) who first suggested that milk fever was due to microbes which developed in the colostrum or first milk, and variants of this idea have been set forth by several authorities.

11. *General Circulatory Disturbances.*

Numerous authorities, including Seitter, have ascribed the disease to a fall in blood pressure following the crisis of calving.

Seitter claimed that artificial distension of the udder caused a pronounced rise in the general blood pressure, and he explained the action of mammary inflation as a curative in this way. His work, however, has been carefully repeated by Auger, who, using methods of greater precision, finds that mammary distension has practically no influence upon the blood pressure.

12. *Anaphylaxis.*

By anaphylaxis is meant a state of unusual or exaggerated susceptibility to a foreign protein. Mention of the condition has already been made in connection with the theories of Sonnenberg and Delmer. The caseine of milk, if introduced into the blood, must be regarded as a foreign protein, and is capable of producing the symptoms of anaphylactic shock in a susceptible animal.

The attractive theory of anaphylaxis as the cause of milk fever was first advanced by Marek, and later developed by Van Goidsenhoven, but all attempts to reproduce the disease by injections of placental emulsion, of milk, and of colostrum have failed.

13. *Avitaminosis.*

The discovery of vitamins or accessory food factors (substances of unknown composition which exist in minute quantities in natural foods, and which are necessary to normal nutrition) led to the further discovery that lack of these substances produced certain conditions which are referred to as "deficiency diseases."

It was believed by Bayard that milk fever represented such a condition, but no deficiency disease is known the onset of which is so sudden as that of milk fever, or which gives such immediate response to treatment.

14. *Auto-Intoxication.*

The term auto-intoxication is used in reference to conditions of disease in which poisonous by-products normally generated in the living body are either too slowly eliminated or are improperly destroyed in the tissues so that they accumulate and exert their poisonous properties upon the organism.

The conception of an auto-intoxication as the cause of milk fever has perhaps received a greater following than any other.

The site of the toxin formation has been variously suggested. Abadie and others have supposed the intestine to be the seat of toxin formation, while Rainaud and De Gaillac have ascribed the intoxication to a uterine origin: but it is to Professor Gratia (1896) that we are indebted for the precise hypothesis which indicated the udder as the seat of an auto-intoxication.

It is true that Gratia's hypothesis has since been found to have no foundation in fact, but, curiously enough, it led by a series of false premises to the discovery of the specific cure of the disease.

Gratia believed that when lactation is established an enormous number of glandular cells are thrown off from the secretory lining membrane of the udder. The bulk of this waste cellular material escapes in the colostrum, but a portion of it is reabsorbed by the blood, and there constitutes a toxin or "leucomaine," as Gratia called it; the greater the activity of the mammary gland, the more massive will be the amount of leucomaine absorbed. This theory had numerous supporters.

In support of Gratia's hypothesis Delmer injected colostrum from milk fever cases into the blood of healthy cows, and produced symptoms which he claimed to be those of milk fever; but it was later shown that the milk of healthy cows could prove toxic even after all micro-organisms had been removed from it by filtration. Actually the condition produced in the experimental cows was similar to that which occurred in Sonnenberg's rabbits—namely, "anaphylactic shock."

The year 1897 marks an epoch in the history of milk fever. In that year Schmidt, a veterinary practitioner in Kolding, Denmark, inspired by Gratia's theory, subjected the milk of affected cows to microscopic examination. He discovered what he believed to be evidence of cellular disintegration, and concluded that some toxin within the udder was responsible for the decomposition of its lining membrane.

In point of fact Schmidt had made a false observation, for what he mistook for degenerated cells were normal colostrum corpuscles, and had he controlled his observations by examining the first milks of healthy cows he would have found the same types of cells.

It is extraordinarily fortunate that he did not do so, for, having satisfied himself that the cause of the disease existed as a living virus within the udder, he immediately set himself to devise a means for its destruction.

The idea of injecting an antiseptic solution into the udder suggested itself, and upon his adopting this treatment one can imagine with what joy he found his first case make a complete recovery within a few hours.

Another and another case responded to the treatment in the same way, and Schmidt quickly communicated his discovery to his brother practitioners. Their reports were enthusiastic, and soon the "Schmidt treatment" became general, with the result that the mortality from the disease fell from about 50 or even 60 per cent to 15 per cent. As time went on several modifications and improvements in the method were introduced, and with the modern practice of mammary insufflation the mortality is to-day less than 1 per cent.

Fig. 5.—*Dr J. J. Schmidt.*

So it came about that upon a false observation, which in turn gave rise to a hastily formed and erroneous conclusion, there was discovered a therapeutic method the effects of which were as miraculous as its action was inexplicable.

To Schmidt must be accorded our deepest gratitude, since his discovery has enabled veterinary science to render almost negative one of the greatest scourges of the dairying industry.

But while a specific cure for the disease had been discovered, the cause of milk fever remained a mystery. Indeed, the very specificity of the remedy rendered the nature of the malady all the more obscure.

The problem was the more attractive by reason of its apparent simplicity.

An apparently healthy prime milch cow, after performing successfully and without mishap a perfectly normal function —*i.e.*, parturition,—is suddenly struck down by a serious disease, all cases of which present similar characters of occurrence and the same general train of symptoms; a disease from which, in all probability, she will die unless she be subjected to a mechanical process, whereupon she makes a recovery that is not only complete, but almost as rapid as was the onset.

We seemed to be confronted with an enigma-tantalus; could we comprehend the nature of the disease, the meaning of the dramatic recovery following inflation should become evident; could we understand the action of the remedy, the nature not only of milk fever should become capable of conception, but of the whole group of diseases to which it appears to belong.

15. *Parathyroid Deficiency* (*Hypocalcœmia*) *Theory.*

In 1924 Professor Henry Dryerre of the Royal (Dick) Veterinary College and the present writer resolved to approach the matter, and as up to that time none of the experimental investigations had afforded any clue to the nature of the disease, we considered that a fruitful line of inquiry might be obtained by first submitting the whole problem to a process of reasoning. With this purpose in view we collected all the available evidence bearing upon the disease in its occurrence and its clinical manifestations.

As a result we arrived at certain tentative conclusions, and although these were unsupported by experimental evidence, we ventured to publish them in March 1925 in the form of a working hypothesis, as they seemed to throw open an entirely new avenue by which the solution to the problem could be approached.

It is known that certain glandular tissues distributed throughout the animal organism play a very important rôle in the regulation of tissue change or metabolism.

These tissues—endocrine organs or ductless glands—produce internal secretions or hormones, which, by complex chemical action, largely maintain the normal functions of the body.

A group of minute endocrine glands situated near the windpipe is known as the parathyroids. The chief functions of these appear to consist in the maintenance of the normal concentration of calcium in the blood, and also in the destruction of certain poisonous by-products of tissue change.

In the event of their defective functioning there results a fall in blood calcium, and the occurrence of a condition known as tetany.

From our study of milk fever, there emerged the probability that the disease resulted from a deficiency of the parathyroid secretion, and we formed the opinion that a cow about to fall a victim to milk fever was really in a condition of latent tetany.

During pregnancy the animal is able to meet the strain of the increased tissue change imposed by the growing fœtus, but upon the act of calving there immediately occurs a suddenly increased demand for the destruction of poisonous by-products, and the defensive mechanism now becomes dangerously strained.

At this period also the blood calcium, already deficient in quantity, suffers further loss by reason of the heavy secretion of colostrum (" first milk "), in which calcium is abundant, and urgent calls are made upon the parathyroids for the replacement and stabilisation of calcium in the tissues.

Hence the parathyroids, unless they be highly active, are unable to cope with the demands made upon them; calcium falls, toxic compounds gather in the blood, and the condition we call milk fever is the result.

The dramatic cure which follows mammary inflation could, we reasoned, be explained partly if not wholly as follows :—

Mammary inflation, by distending the udder, arrests all lactation, and consequently prevents further exchange of calcium from the blood to the milk. In this way there occurs no further loss of calcium, and it now reaccumulates in the blood. We considered that, similarly, calcium retention could also explain the efficacy of a restricted withdrawal of milk in the prevention of the disease.

If our conception of the nature of the disease were correct, then it followed that the blood calcium in milk fever should be below normal (hypocalcæmia). Analyses of seven samples of blood from cases of milk fever showed an average of **4·8 mgrms.** calcium per cent serum: a marked reduction when compared with the normal—**9 mgrms.** to **11 mgrms.** per cent.

Later, in 1925, Little and Wright, having observed the similarity which existed between the symptoms of milk fever and those which occurred in an animal deprived of its parathyroids, made a valuable contribution, in which they recorded the results obtained in blood calcium determinations on twelve cases of milk fever.

They showed that a considerable diminution (in mild cases 20 to 30 per cent, and in severe cases up to 60 per cent) accompanied the onset of the disease, and they also found that the greater calcium reductions accorded with the more severe cases.

These, and our own experiments, therefore furnished considerable support to our hypothesis.

16. *Hypoglycæmia Theory.*

At this stage another and important theory attracted attention. This new conception had its genesis in the observation that the comatose phase of milk fever bore a striking resemblance to the coma associated with the depletion of blood sugar (hypoglycæmia) which follows massive injections of insulin. (Insulin, another endocrine secretion, regulates the utilisation of sugar by the body. While deficiency of insulin results in diabetes, it has recently been found that large injections of insulin bring about a rapid reduction in the blood sugar, and that this is followed by coma.)

Support to this theory was supplied by Widmark and Carlens in Sweden. These workers showed that inflation of the udder in normal animals caused a pronounced if transient rise in the sugar content of the blood.

The theory of hypoglycæmia appeared on *prima facie* evidence very plausible, and it seemed to us that the matter could easily be verified or refuted by determining the blood sugar content which obtained in the disease.

In seven cases of milk fever we found the blood sugar to be high, and this has also been the finding of a large number of workers whom the theory excited to active investigation.

Now there are two kinds of sugar in the body. *Glucose* is found in the blood, and it is in this form that sugar is available to the tissues, but in lactating females the blood glucose is converted in the mammary gland into *lactose*, and it is this type of sugar that we find in milk.

Lactose as such cannot be utilised by the tissues, but when milk is taken by the suckling young, the lactose is quickly again reconverted into glucose in the digestive tract, whence it is absorbed into the blood.

It has now been found that, although artificial mammary distension does increase the amount of sugar in the blood, the increase is due to lactose (or milk sugar) absorbed from the milk, and since milk sugar cannot be made use of by the blood, this increase is without significance in that it can play no part in the cure of the disease.

Original Investigations.

Still adhering to our belief that the essential nature of milk fever could be found in parathyroid failure, with resultant calcium deficiency and the consequent accumulation of toxic metabolites, we pursued our investigations, the results of which may be subdivided in the following manner :—

1. *Determination of Blood Calcium Values in Parturient Cows.*

Calcium is recognised as presenting less variation in quantity than any other constituent of the blood ; in point of fact, the serum calcium content in a given individual is singularly constant.

The calcium content of a normal milch cow is generally accepted as varying from **9 mgrms.** to **11 mgrms.** per 100 c.c. serum, and we found that there is no difference between the calcium values in parturient cows and those in advanced lactation.

2. *Effect of Initial Lactation on Blood Calcium Values.*

As has been noted, colostrum is rich in calcium, and its secretion represents a heavy drain upon the tissues.

In order to determine the effect of the initial secretion of colostrum upon the blood calcium, the following observations on two cows were made :—

Table I.—Case No. 13, "Maisie."

1st sample	1½ hours before calving	9·52 mgrms. calcium
	CALVED.	
2nd sample	7½ hours after calving	8·79 mgrms. calcium
3rd ”	15½ ” ”	8·84 ” ”
4th ”	66 ” ”	9·69 ” ”

Lactation commenced just after calving, and was active when the second sample was taken. The figures indicate that the calcium returned to normal after the crisis accompanying the initiation of lactation was past.

TABLE II.- -CASE NO. 15, "Hazel."

1st sample	21 hours before calving	10·97 mgrms. calcium
2nd "	13½ " "	9·77 " "
3rd "	4½ " "	10·09 " "
	CALVED.	
4th sample	10½ hours after calving	10·45 mgrms. calcium
5th "	21 " "	9·41 " "

In this case a moderate lactation commenced before calving, between the collection of the first and second samples, when the calcium fell approximately by 10 per cent. It gradually returned to normal, but fell again when a profuse lactation set in between the collection of the fourth and fifth samples (Fig. 6).

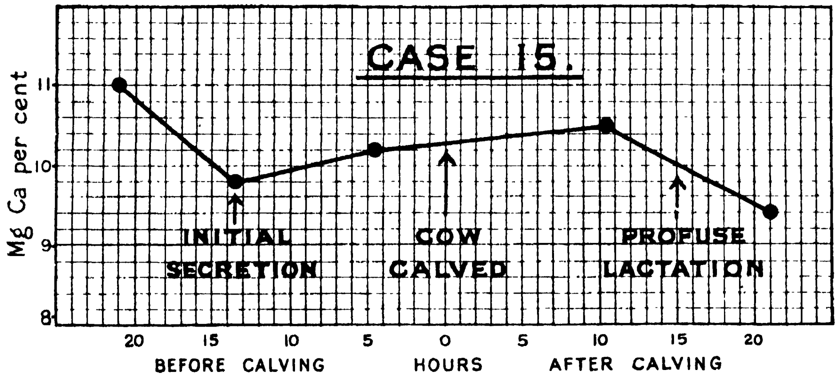

Fig. 6.—This curve shows in graphic form the data given in the preceding table.

While it would not be justifiable to draw firm conclusions from two cases, we may consider these results as highly significant.

3. *Determinations of Blood Calcium Values in Milk Fever.*

Sixty samples of blood from cows attacked by milk fever have been examined. The calcium content in these cases ranges from a minimum of **3·00 mgrms.** per cent to a maximum of **7·76 mgrms.** The average of the values obtained in the cases works out at approximately **5 mgrms.**

The significance of these figures is realised when they are compared with the blood calcium content of normal parturient cows, the mean of seventeen determinations being **9·85 mgrms.** per cent.

	Milk Fever. 60 Cases.	Parturient Normals. 17 Determinations.
Maximal figure . . .	3·00	10·97
Minimal figure . . .	7·76	8·64
Average figure . . .	5·00	9·85

4. *Effect of Mammary Inflation on Normal Lactating Ewes.*

In an endeavour to ascertain the effect of mammary inflation on the blood calcium in a normal lactating animal, the following experiments were made.

The test subjects were four black-faced ewes about six weeks lambed. The animals appeared normal, were in good milk yield, and had healthy lambs at foot.

A sample of blood was collected from each ewe. The udders of all four were then immediately inflated, and for observational purposes the animals were divided into two groups of two ewes each. From one group (A) the blood was drawn off at intervals of half an hour, until two hours after inflation had elapsed. In this manner, five specimens of blood were obtained from each of two ewes, one before inflation and four subsequent thereto.

From the remaining pair of ewes (Group B) the blood was sampled 3, 5, 11, and 22 hours after inflation, and from each of these ewes five samples were thus obtained. These bloods were then analysed, and it was found that in all the cases there was an increase of about 10 per cent in the calcium content. In Group A the rise was observable in the specimens drawn half an hour after inflation, and it was observed at the third and fifth hour in Group B.

5. *The Effect of Mammary Inflation on the Blood Calcium in Milk Fever.*

In a number of instances we have been fortunate in obtaining blood samples both before mammary inflation and at subsequent periods during and after recovery.

The following were typical examples of the results obtained :—

CASE NO. 8.

1st sample (before inflation)	45 minutes after onset. Cow "down"	4·14 mgrms. calcium
2nd sample	5 hours later. Cow now on her feet	6·00 ,, ,,
3rd ,,	7 days later. Cow completely recovered	10·04 ,, ,,

CASE NO. 18.

1st sample (before inflation)	Cow "down"	3·95 mgrms. calcium
2nd sample	9½ hours later. Cow now on her feet	6·45 ,, ,,
3rd ,,	3 days later. Complete recovery	11·79 ,, ,,
4th ,,	7 days after inflation. No recurrence	9·72 ,, ,,

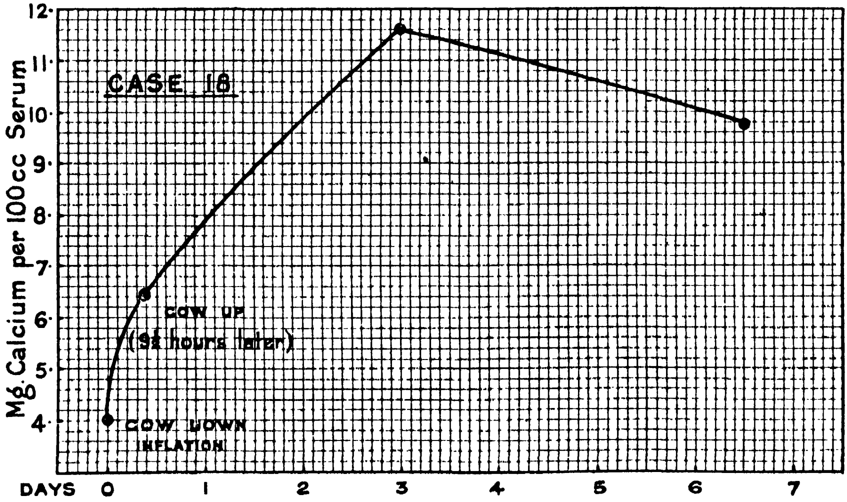

Fig. 7.—The above is a graphic representation of the data given for Case No. 18. Observe the effect of inflation in producing a rapid initial rise in the blood calcium, which eventually reaches, at about the third day, a point above normal.

Case No. 32.

1st sample (before inflation)	Cow tetanised but able to stand. Udder inflated while standing	5·17 mgrms. calcium
2nd sample	10 hours later. Cow apparently normal	8·07 ,, ,,
3rd ,,	82 hours after inflation. Complete recovery	10·45 ,, ,,
4th ,,	131 hours after inflation. No recurrence	11·59 ,, ,,
5th ,,	179 hours after inflation. No recurrence	9·8 ,, ,,

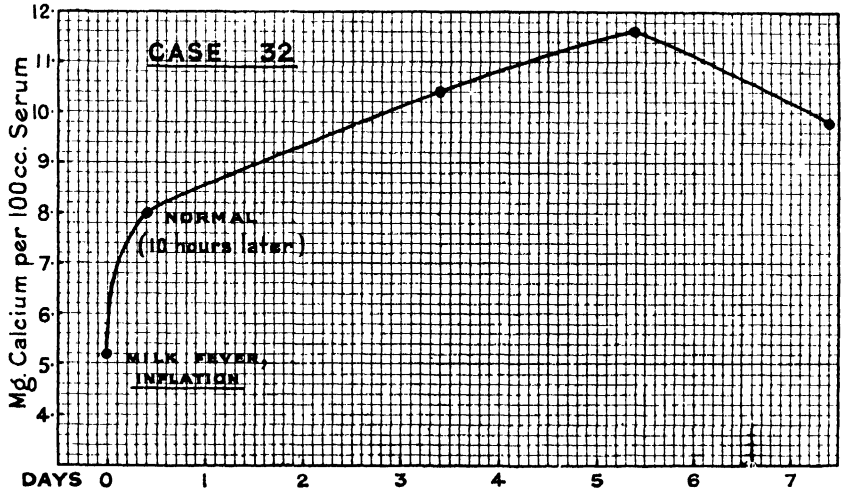

Fig. 8.—This curve represents Case No. 32 and shows the rapid initial rise similar to that in Fig. 7. Note again the sustained hyper-calcæmia.

Case No. 34.

1st sample (before inflation)	Cow comatose	5·17 mgrms. calcium
2nd sample	24 hours later. Complete recovery	10·97 ,, ,,

Case No. 39.

1st sample (before inflation)	Cow comatose	4·55 mgrms. calcium
2nd sample	25 hours later. Complete recovery	9·23 ,, ,,

It is now generally accepted that calcium is a factor of supreme importance in bringing about the destruction of poisonous substances in the tissues, and in its absence the poisonous by-products of normal tissue change as well as the toxins of microbial infection may exert their noxious properties. In this way calcium may be regarded as acting as a buffer or protection to the tissues.

The milch cow, unlike all other mammals, with the possible exception of the ewe and goat, has been bred to produce an enormous quantity of milk—indeed, her milk secretion may now be regarded as almost pathological. If at the time of calving her parathyroid glands do not keep pace with the activity of her mammary glands, then she cannot maintain her blood calcium at the requisite level, and poisonous compounds will gather since their destruction cannot be effected in the absence of calcium.

Mammary distension by preventing the exchange of calcium from the blood to the milk permits of its reaccumulation in the tissues and so produces recovery.

Since the nature of milk fever and the action of mammary inflation now appear to be capable of comprehension, it is hoped that it may be possible to prevent the occurrence of the disease by appropriate measures.

These might consist in ensuring calcium assimilation by means of a sufficiency of Vitamin D in the animal's diet or, alternatively, by administering to the animal a preparation which would supplement the action of the deficient parathyroids.

In collaboration with Professor Dryerre and Dr N. C. Wright of the Hannah Dairy Research Institute, the writer is at present engaged in carrying out investigations along these lines, and it is permissible to state that the results so far obtained are distinctly encouraging.

CONCLUSION.

An acute and pronounced fall in the level of the blood calcium is to be regarded as the prevailing factor in the production of milk fever.

Mammary inflation, by preventing the further exchange of calcium from the blood to the milk, raises the concentration of blood calcium and so brings about recovery.

INSECT ENEMIES OF 1928.

By R. STEWART MACDOUGALL, M.A., D.Sc., F.R.S.E., Consulting Entomologist to the Society.

BEETLES DESTRUCTIVE TO FELLED, STORED, AND WORKED TIMBER.

IN past years on account of repeated queries, especially with regard to "Furniture Beetles," I have given notes on these beetles and methods of combating them. The notes referred chiefly to species of the family Anobiidæ. The damage done to the famous Westminster Hall roof by the death-watch (*Xestobium rufo-villosum*) aroused considerable interest, and partly as a result of this the destructive work of Anobiid beetles has been reported from various cathedrals and churches. Further, the establishment of the "Forest Products Research Laboratory, Princes Risborough, Bucks., Department of Scientific and Industrial Research," has greatly stimulated inquiry and research. Inquiry has revealed a considerable destruction, by insects, of stored and manufactured timber up and down the country, with a constant importation of wood already containing injurious beetle species, which, completing their development in this country, issue and pass to timber stacked alongside. Active research at the moment is directed to the best methods of sterilising infested timber, and to methods of prevention and remedy.

During the past year, apart from inquiries regarding the Common Furniture Beetle (*Anobium punctatum*[1]), several beetles of other Families injurious to wood have been sent to me, and I take advantage of this to describe these beetles, and at the same time to give some idea of the entomological work that is being done under the auspices of the Forestry Commission and the Forest Products Research Laboratory.

As serving to recall the Furniture Beetles of the family Anobiidæ, mention may be made of *Ptilinus pectinicornis* (pectinicornis means comb-like antennæ). This beetle may be distinguished from the Common Furniture Beetle (*Anobium punctatum*[2]) by its somewhat greater size—just over ⅛th inch—its elongated and cylindrical body, and the absence from its wing-covers of longitudinal lines and furrows; specially distinctive are the comb-like antennæ; the teeth of the comb are long and easy to see in the male; in the female the comb is more saw-like.

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[1] Described in the 'Transactions' of 1926.

[2] See 'Transactions' for 1926.

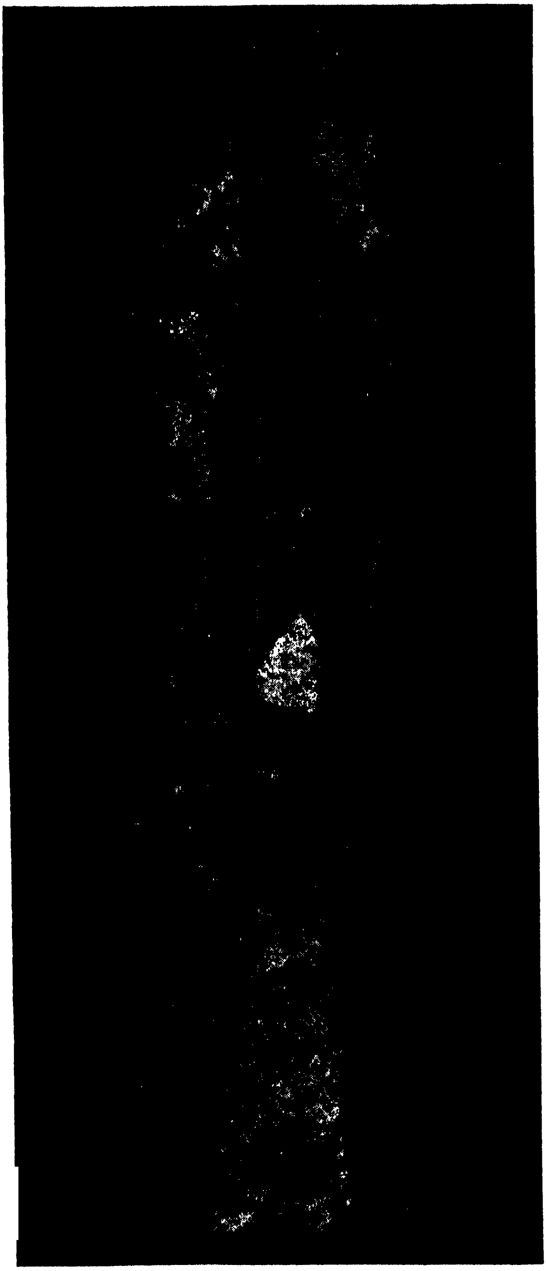

Fig. 9.—*Leg of Chair from Corrie, Arran, damaged by* Ptilinus pectinicornis.

Natural size.

P. pectinicornis is an out-of-door species found in old posts, and in dead, standing and fallen old willow and other trees: but it is quite correctly included under the title Furniture Beetles, as there are records of such attack both in England and Scotland. Fig. 9 is part of the leg of a chair from Corrie spoiled by this insect. On the outside the flight or exit-holes of the adult beetle are seen; internally the wood has been reduced to a fine powdery mass, an amount of damage not suspected from the external appearance. In the Corrie attack several chairs were quite ruined by Ptilinus.

The details of the life-history of Ptilinus are not so well known as in Anobium and Xestobium, but Ptilinus is believed to resemble Anobium in round of life. The exit-holes of the adults are somewhat larger than those of the Common Furniture

Beetle. The females are said not to leave the burrows in the wood, the males mating from the outside or just inside the exit-holes. The larvæ resemble those of the Common Furniture Beetle, being white grubs with brown head and jaws, and six thoracic legs. Gahan[1] states that in its later stages the grub can be distinguished, under the microscope, by groups of very minute brown spinules on the sides of some of the body segments.

The Powder Post Beetles of Family Lyctidæ.

In the United States the term Powder Post Beetle has been applied to such species whose larvæ tunnel in the wood so that the result is an interior traversed and honeycombed by irregular tunnels, which become packed with undigested fragments of wood that have passed through the alimentary canal of the larva; the wood is so reduced that the material falls or crumbles away as a fine powder. Externally minute holes indicate the places from which the adults have emerged. Specially, the term Powder Post Beetles has been applied to the family Lyctidæ and another closely related family.

The characters of the family Lyctidæ that help to mark the species out from other nearly-related beetles are the prominent head, which is not withdrawn into the thorax; the club at the end of the antennæ is 2-jointed; the body is elongate and somewhat flat; of the five abdominal joints visible from below the first is always the longest; and of the 5-jointed tarsus the first joint is very minute, while the last one is as long as the other four together. In Britain, till comparatively recently, only two Lyctus species were recorded—viz., *Lyctus linearis* (*canaliculatus*), a European species, but now spread outside Europe; and *L. brunneus*, originally from the north of South America, but now carried in commerce all over the world. Indeed *L. brunneus* is commoner now in Britain than the European *L. linearis*, a result due to the importing and stacking of timber containing the brunneus larvæ.

Both beetles are small, measuring in length from $\frac{1}{8}$th inch to $\frac{1}{5}$th inch; eyes prominent and thorax square; colour brown or red-brown. *L. linearis* has a distinct broad central furrow (use a lens) on the upper surface of the prothorax, while in *L. brunneus* the furrow is almost absent, or at any rate not so manifest. Recently two other species[2] have been recorded as introduced to Britain in imported timber—viz., *L. planicollis* and *L. parallelopipedus*.

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[1] 'Furniture Beetles: their life history, and how to check or prevent the damage,' by Charles J. Gahan. Econ. Series No. 11. British Museum (*Natural History*).

[2] 'Lyctus Powder Post Beetles,' by Dr R. C. Fisher, with Notes on: 1. Heat Sterilisation of Timber in Relation to Kiln Seasoning, by S. T. C. Stillwell, B.Sc.; and, 2. Vessel Size and the Liability of Woods to Lyctus Attack, by S. H. Clarke, B.Sc. (Department of Scientific and Industrial Research). Forest Products Research, Bulletin No. 2.

Lyctus species are found infesting dead and dry wood of standing or fallen broad-leaved trees that have been left for a year or more, and also infesting the seasoned sapwood of stacked timber or articles manufactured from such material —*e.g.*, walking-sticks, spade and other tool handles, tennis racquets, veneers, walnut pannelling, gun-stocks, oars, wheelbarrows, and a number of other manufactured articles.

Specially the following points should be noted:—

(*a*) Only broad-leaved trees (known also as hardwoods) are attacked; not all broad-leaved trees, but only those where the vessels of the wood reach a certain size.

(*b*) The sapwood only and not the heart wood is attacked.

(*c*) Newly-felled timber is not attractive to the beetles; the wood must have undergone a certain amount of seasoning.

(*d*) Thoroughly seasoned or completely dry timber is not attacked. For example, we do not find the Anobiid furniture beetles and the Lyctid beetles at work together; the drier the wood the more favoured it is by such Anobiids as the Death-Watch Beetle, the Common Furniture Beetle, and Ptilinus.

General Life-History.

Considerable amount of work has been done with regard to the details of the life-history of a few Lyctid species.[1] A general statement would be that the generation is on the average an annual one. Variations in temperature, however, induce changes in length of time. Thus, if an infested manufactured article be indoors and so subjected to an artificial temperature, the life-cycle is completed in a shorter time than, say, with timber stacked and more or less exposed. Further, on a more nutritive diet, development is quicker than with less nutritive material. There is much of interest here, with such problems still awaiting solution as what is the most favourable moisture content, what is it that makes a certain condition of wood more attractive to one species of insect than another, what chemical changes are going on in the wood, and what relation have these changes to the insect's food supply; further, do these wood-inhabiting beetle larvæ really feed on the wood, or is there some interrelationship between the insects and the wood, and possible and perhaps necessary fungi and bacteria?

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[1] Der Splintkafer L. canaliculatus by Nordlinger in Blatter für Forst-und-Jagdwissenschaft, 43, 1862.

Mœurs et Metamorphoses du Lyctus canaliculatus, by Xambeau in Bull. Soc. Sci. Nat. L'Ouest France, 8, 1898.

Egg and manner of oviposition of Lyctus planicollis, by Snyder in Journ. Agri. Res. No. 7, 1916.

On the method of oviposition of the egg of Lyctus brunneus, by Altson in Journ. Linn. Soc. Zool., xxxv. No. 238, 1924.

On the genital system of L. brunneus, by Altson in Journ. Linn. Soc. Zool., 35, 1924.

Lyctus Powder Post Beetles, by Fisher, and Stillwell, and Clarke. Bull. No. 2. Forest Products Research.

The adult beetles are most active at nightfall and at night; in the daytime they choose resting-places away from the light. After pairing, the female, by means of a projected ovipositor or egg-laying apparatus, lays her eggs, one or several at a time, actually inside a wood vessel. It has been suggested by several of our authors that this is why conifer or needle-leaved trees are avoided, for the wood of conifers (so-called soft-wooded trees) has no vessels. But all broad-leaved trees will not serve, only those with vessels or pores of a diameter capable of receiving the egg. Clarke[1] has made a series of measurements of Lyctus eggs and of the vessels of a large series of different woods, and as a result of comparison between broad-leaved species whose wood is attacked and broad-leaved species that remain free from attack, concludes that "pore size must be regarded as a limiting factor in the attacks of Lyctus." Munro[2] gives as immune from attack the following close-grained narrow-pored woods: "true mahogany (Swietenia), birch, maple, beech," and names as the commonest woods of commerce which are attacked by Lyctus, "oak, ash, hickory, sweet chestnut, walnut." I find in my notes that in 1905 I recorded damage by *L. linearis* on 'mahogany' and walnut, but 'mahogany' may have been a trade name. When the egg hatches, the larva first nourishes itself on such reserve as remains in the egg, and then proceeds to bore, more or less following the grain of the wood. The full-grown larva is not unlike that of Anobium, as it is white with brown head and jaws, has a curved wrinkled body, and three pairs of thoracic legs. Munro[3] describes the differences thus:—

Larva of Lyctus.	*Larva of Anobiidæ.*
The last pair of spiracles or breathing pores much larger than the other spiracles.	The last pair of spiracles not enlarged, and the same size as the others.
Legs 3-jointed.	Legs 5-jointed.

When the Lyctus larva is full grown it turns towards the outside of the wood, and pupates at the end of its burrow. The pupa is not enclosed in a cocoon; gradually the beetle develops; at first it is soft and weak, but soon hardens, and then makes its way to the outside, a small round hole indicating the place of exit.

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[1] Forest Products Research, Bulletin No. 2.

[2] 'Beetles Injurious to Timber,' by J. W. Munro, M.A. (Hon., Oxon.), D.Sc. (Edin.). Forestry Commission, Bulletin No. 9.

[3] "The Larvæ of the Furniture Beetles—Families Anobiidæ and Lyctidæ" in 'Proceedings of the Royal Physical Society.' Vol. xix. Session 1914-15

TREATMENT FOR LYCTUS.

Altson[1] suggests a number of measures for control, and amongst them notes the dressing ortho-di-chlor-benzene. Munro[2] recommends ortho-di-chlor-benzene for use on a restricted scale for Lyctus, and for Anobiidæ in furniture and woodwork, and quotes Lefroy's formula:—

Ortho-di-chlor-benzene	91 parts.
Castile soap	7 "
Cedar wood oil	2 "

This insecticide is painted on to the woodwork after thorough dusting and cleaning, and the treatment must be repeated.

Dealing with the larger problem of the treatment of timber in the bulk against Lyctidæ, the recommendations given in Bulletin No. 9 Forestry Commission and Bulletin No. 2 Forest Products Research are the removal of the sapwood before making the timber into furniture, and specially sterilisation by heat and kiln seasoning of timber. Snyder's work in the United States in sterilising by moist heat, and the success obtained in the experimental work at the Forest Products Research Laboratories, Princes Risborough, are full of encouragement. Wood once sterilised is not protected against a new attack, but experiments are in progress the aim of which is to make it possible to sterilise and at the same time to impregnate the wood so as to render it immune to insect attack.

AMBROSIA BEETLES, OR THE PIN-HOLE BORERS OF THE AMERICANS.

There are certain beetles, here and in the tropics, belonging to the families Scolytidæ (Ipidæ) and Platypodidæ, which attack the tree at the time of its felling and bore right into the wood. With some valuable tropical woods there can be considerable loss, and more than once requests have come to me from abroad asking for help. Both hard woods and soft woods may suffer, but especially hard woods. We may take the genus Trypodendron as an example. *Trypodendron lineatum* bores through the bark right into the sapwood of felled stems and stumps of spruce, Scots pine, and larch ; and *Trypodendron domesticum* bores into the sapwood of felled broad-leaved species like birch, oak, and beech.

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[1] "Beetles Damaging Seasoned Timber, with an account of their ravages and the Methods of Treatment," by A. M. A. Altson, F.E.S. Reprinted from the 'Timber Trades Journal,' April 15 to May 13, 1922.

[2] 'Beetles Injurious to Timber.' Bulletin No. 9, Forestry Commission.

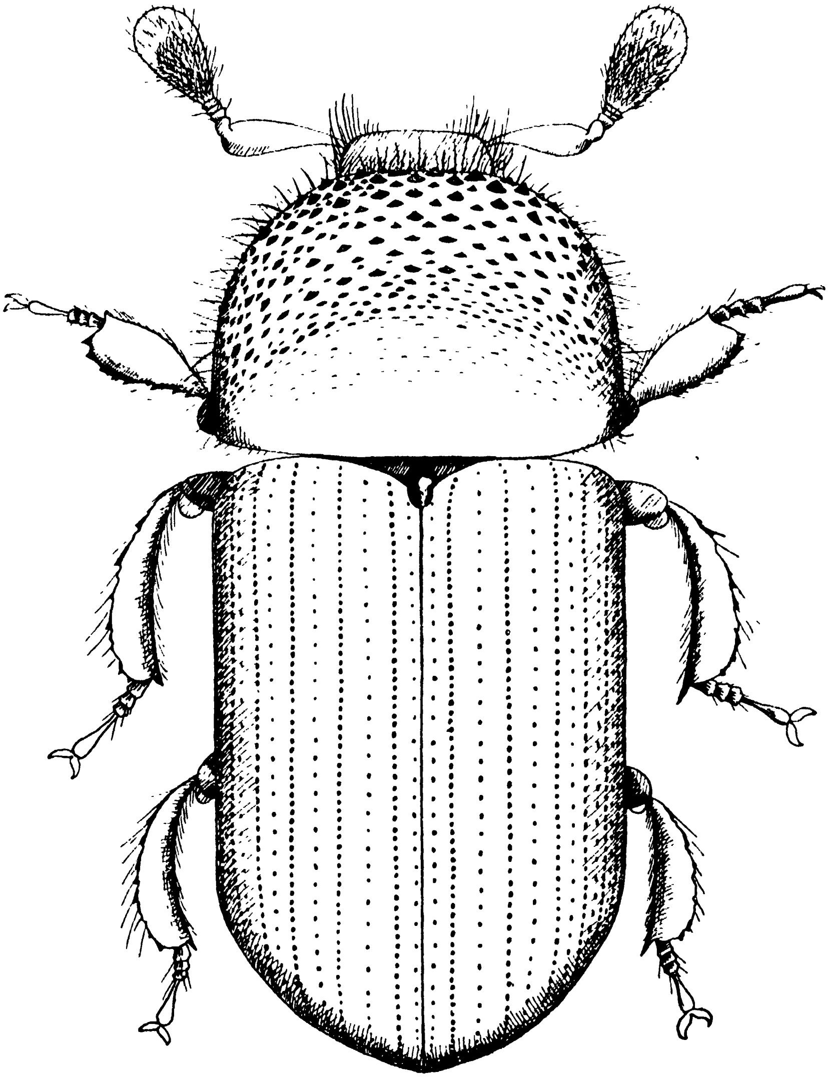

Fig. 10.—*Trypodendron lineatum.*

Enlarged drawing from nature.

The genus Trypodendron (Fig. 10) is characterised by rounded body, dark thorax, and pale wing-covers; the whip of the antenna is 4-jointed, and the club is more or less angular and hairy (Fig. 11). The work and the pattern of the brood

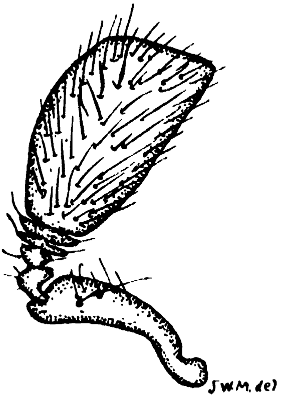

Fig. 11.—*Antenna of* Trypodendron domesticum.

Greatly enlarged.

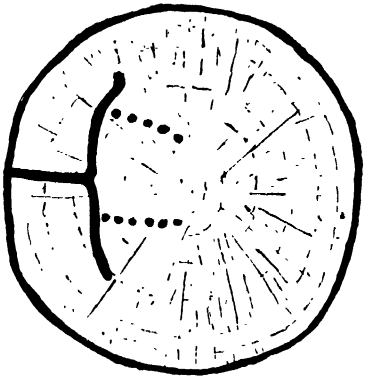

Fig. 12.—*Mother galleries of* Trypodendron lineatum *on Spruce.*

galleries of *T. lineatum* and *T. domesticum* are illustrated in Figs. 12, 13, 14, 15, and 16, which are drawings made from specimens in my collection.

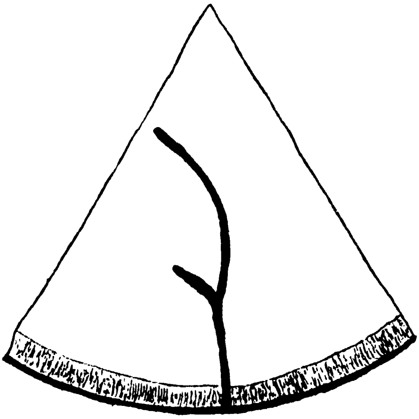

Fig. 13.—*Mother gallery of* Trypodendron domesticum *on Birch.*

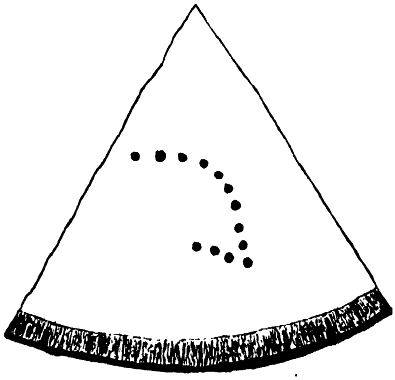

Fig. 14.—*The larval chambers of* T. domesticum *on Birch have been cut across.*

The female enters the bark, and goes straight through to the outermost wood tunnelling in the direction of the pith. Then she turns right and left to make, as a rule, a two-armed gallery (sometimes, however, a one-armed one), following more or less the same wood ring, or, it may be, at different depths of the transverse section (Figs. 12, 13, 14). On the upper and lower sides—*i.e.*, above and below—of the mother gallery she lays her eggs, arranging them, as a rule, not opposite to one another, but alternately. The larvæ from the eggs do not eat out long galleries, but the larval chambers or gnawings are quite short, the brood system having, in section, the appearance more or less of a single pole ladder, with the larval galleries corresponding to the rungs (Figs. 15 and 16). In some pin-hole species, larvæ, pupæ, and adults may be altogether in a family in the tunnel, or in an enlargement of the tunnel. The grubs do not nourish themselves on wood, but feed on a fungus which develops in the presence of such sap as is found in the borings. It is because of this kind of feeding that the beetles were named Ambrosia beetles. The full-grown larvæ pupate in their small chambers, and the adult beetles, at the end of pupation, emerge, not

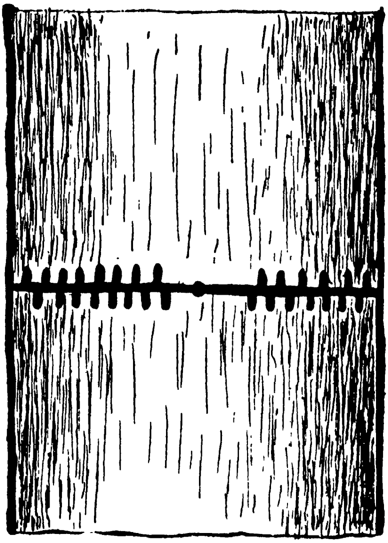

Fig. 15.—*Mother galleries, and in vertical section the ladder-like larval galleries or chambers, of* T. lineatum *on Spruce.*

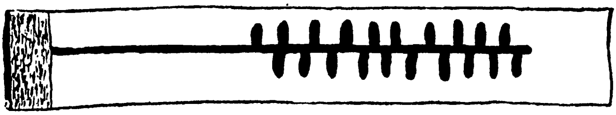

Fig. 16.—*Entrance gallery of* Trypodendron domesticum *with ladder-like chambers of larvæ cut vertically on Birch.*

each by a separate boring and exit-hole, but by the old gallery and entrance hole of the mother.

The wood is spoiled if the entrance holes are numerous, and it is also discoloured by the fungi present.

THE LONG-HORNED BEETLES (*Family Cerambycidæ*).

This is a family of beetles whose larvæ are destructive to wood, but for the most part the damage is done in the open to standing trees in poor health or dying or dead, or to logs that have been allowed to lie for a long time. In some cases, however, the damage is done to stored or stacked timber, and in rarer cases to worked timber indoors. The beetles of this family are from fairly large to very large (for insects), and typically have long antennæ; the antennæ are often distinctly longer than the body (Fig. 17). The antennæ, thread-like or bristle-like or sometimes saw-like, with knot-like joints, may spring from prominences on the front of the head, and it is not uncommon for the kidney-shaped compound eyes to be in intimate connection with the base of the antennæ. The body is elongated, and the long legs end in feet (tarsi), which appear to be 4-jointed (there is really a small fifth joint, but it is overlooked unless under magnification); the third joint is bilobed or heart-shaped, and the first three joints of the foot have a sole of hairy or silky pads. The adults themselves do little or no harm; it is the larva which does the damage.

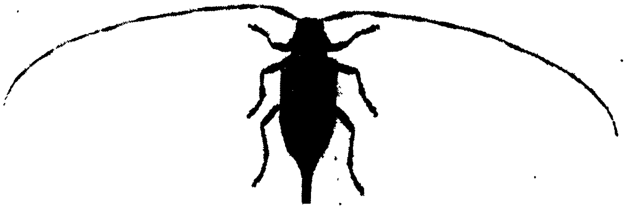

Fig. 17.—*Acanthocinus* (*Astynomus*) *ædilis*.

Female. Natural size.

The larva is an elongated grub with strong horny jaws (Fig. 18); the thorax which follows is often swollen, with the head received into the prothoracic joint; six short legs may be carried by the thorax, or legs may be absent. The abdominal joints are well marked, and the body may gradually taper from the thorax backwards. The joints may show on upper and lower surface roughnesses or hard tubercles, which aid in the movements that take place in the burrows. The grubs are found tunnelling under the bark or right into the wood of trees; only in a few cases is the host plant herbaceous or shrubby. The colour of the larvæ is—apart from the head—white or dirty white. "Dust to dust" is the rule of Nature, and not more so than with forest trees, in which from a state of ill-health until the forest giant is no more than a powdery mass, a succession of animal and fungus and bacterial forms can be traced, the different species playing their part in the disintegration, and then handing on the continuation of the work to others. In this work of disintegration in the forest the larvæ of long-horned beetles, by their burrowing, play their part (Fig. 19). Some, like Rhagium and Ergates, live in quite dead rotting stumps. The larvæ photographed in Fig. 18 were taken by me in the Landes from dead stumps of the maritime pine, whose wood was so spoiled and reduced that it fell to pieces on a kick from a heavy boot, revealing a number of the grubs at work. The British Rhagium (Fig. 20) species measure up to ¾ inch in length; their antennæ are, for Longicorn beetles, comparatively short, and situated well up on the forehead; on each side of the thorax is a spine, and the wing-covers have raised lines running down them. Fig. 19 shows the work of *R. bifasciatum* larvæ. *R. bifasciatum* has rather longer antennæ than the other two British species, and each wing-cover shows

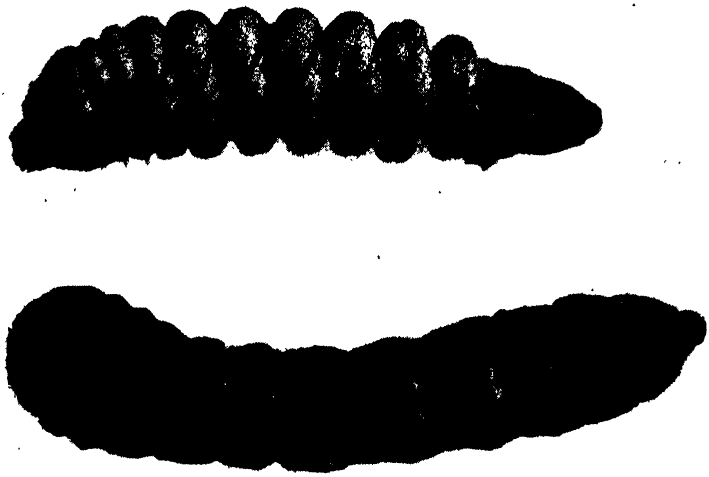

Fig. 18.—*Larvæ of* Ergates faber. *From stumps of Maritime Pine.*
Natural size.

two oblique yellowish bands. The Rhagium grubs, which are common in stumps of pine, have six short legs; they can be distinguished from other related grubs by the body being about the same breadth all the way down, by their flattened heads, which are markedly cut away at the sides, and by the three-toothed mandibles.

Among Long-Horned Beetles that are physiologically harmful in Britain may be named *Saperda carcharias* in the north of Scotland and in the Fen district of England, *Saperda populnea* in the middle and south of England, and *Tetropium gabrieli* (Fig. 21). The last is harmful to larch, and is an example of how Longicorn larvæ, present in wood, may be easily transported to another country, in which new country adults developed from the grubs may find congenial environment and multiply. The grubs of *Saperda carcharias* are found in poplar and willow stems from five years of age to twenty years; thicker branches are also attacked. The adult beetle

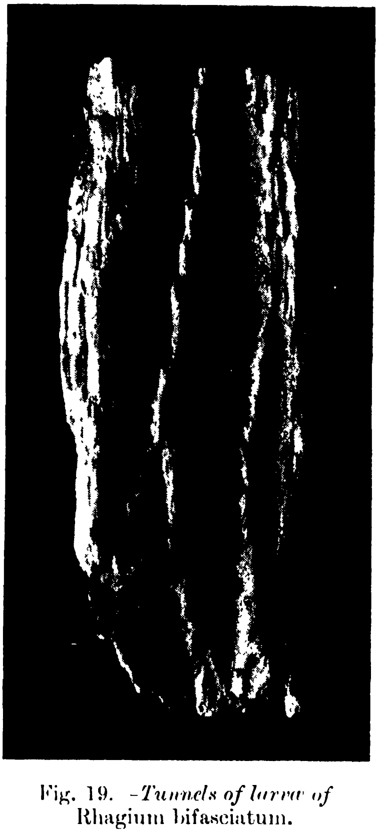
Fig. 19. —*Tunnels of larvæ of* Rhagium bifasciatum.

Natural size.

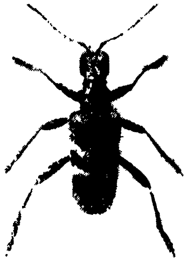
Fig. 20.
Rhagium inquisitor.

Natural size.

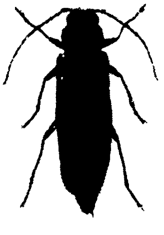
Fig. 21.
Tetropium gabrieli.

Natural size.

bites little notches in the bark, and in each such cut lays an egg; the larvæ eat first in the bast and outer sapwood,

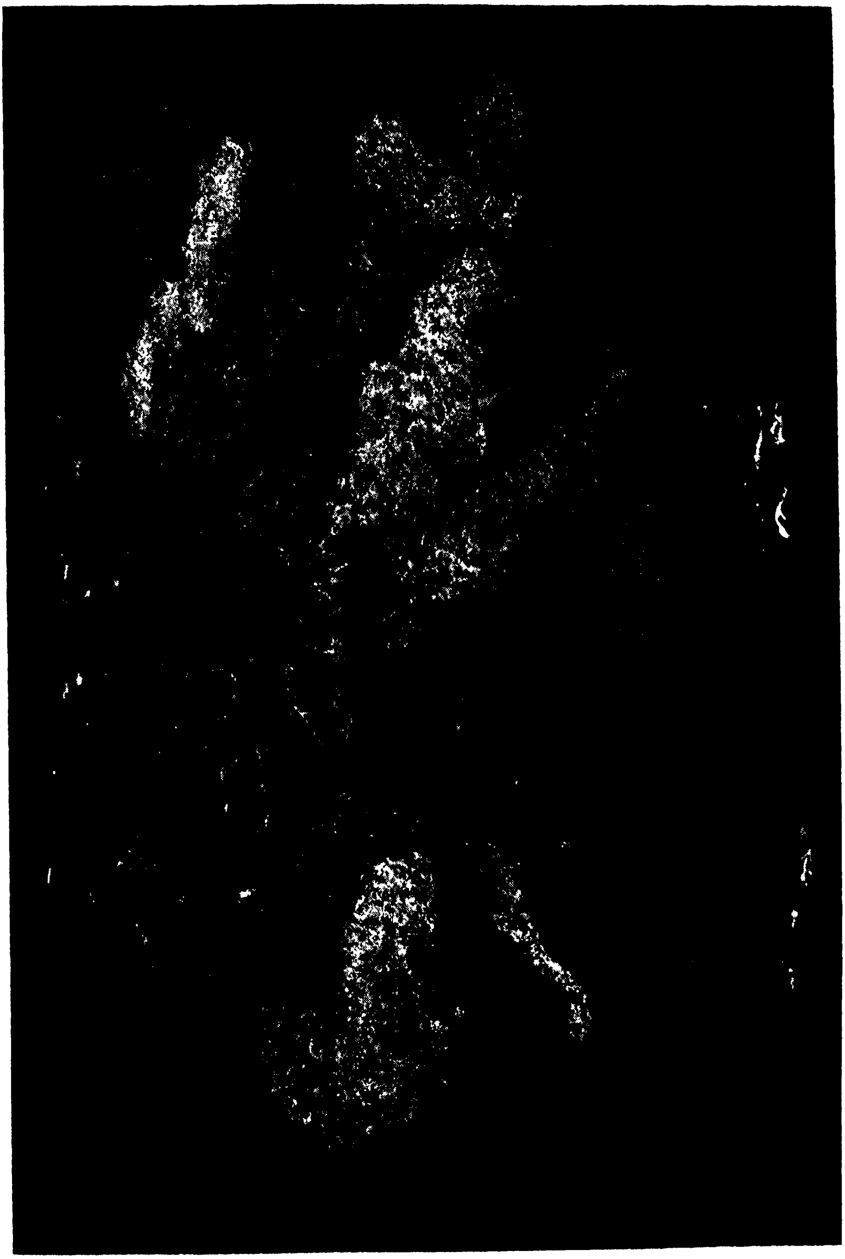

Fig. 22.—*The work of* Callidium violaceum.

The tunnels of the larvæ filled with bore-meal are seen in natural size.

and then going deeper, tunnel in a longitudinal direction; the tunnels are filled with coarse sawdust and small splinters of wood. The damage is twofold—viz., physiological damage, as the attacked trees may die off owing to the ringing of the stem when several larvæ are at work, the passage of sap being in consequence interfered with; and also technical damage as the wood is mined.

Saperda populnea, a smaller species, lays her eggs on the stems or branches of young aspen, the larva feeding at first in the outer wood, and then boring to the pith. The result of populnea attack is the appearance of swellings or knots on the branches.

Another Longicorn which has a bad reputation on the continent as physiologically harmful to spruce is *Callidium* or *Tetropium luridum*, which is also an enemy of larch and pine. The female, by means of her ovipositor, pushes her eggs under the bark scales; several eggs are found together. The larvæ gnaw broad, rather irregular galleries under the bark and in the bast (Fig. 22), these galleries being filled with a red-brown bore-meal; next the sapwood is entered, and the bore-meal is brown and white. When full grown the grub gnaws horizontally into the wood, and then turns to eat out a bed that lies in the longitudinal direction, and there pupates. The boring is stuffed with bore-meal, through which the beetle, when ready, tunnels its way, making a hole through the bark to the outside. These borings into the wood render Callidium also technically harmful, especially also as the wood is further spoiled by the woodpecker in its hacking quest for the grubs and pupæ.

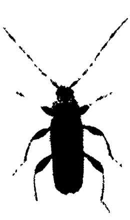

Fig. 23.
Callidium variabile.
Natural size.

In endeavouring to control physiologically or technically harmful Longicorns that attack the trees in the woods good forestry is required—viz., the timely felling and removal of attacked or unhealthy trees. Traps may be prepared by felling trees and allowing them to lie. Such felled logs will be used for brood purposes, and must be carefully visited and barked before the grubs have gone deep enough to be out of danger. The barking of the logs is satisfactory in some cases, but with such species as *C. luridum* it may fail, for the larvæ may already have entered the sapwood where they are out of reach of desiccation, and of such enemies as would destroy exposed grubs.

Among Longicorns harmful to felled and stored timber we have *Acanthocinus ædilis* (Fig. 17) on pine. This beetle is now reckoned among British species, but it was and is imported in cut timber. The common name for this beetle is the Timberman (Fig. 17); it is brown in colour, with a grey pubescence; the long antennæ are ringed with white. The antennæ

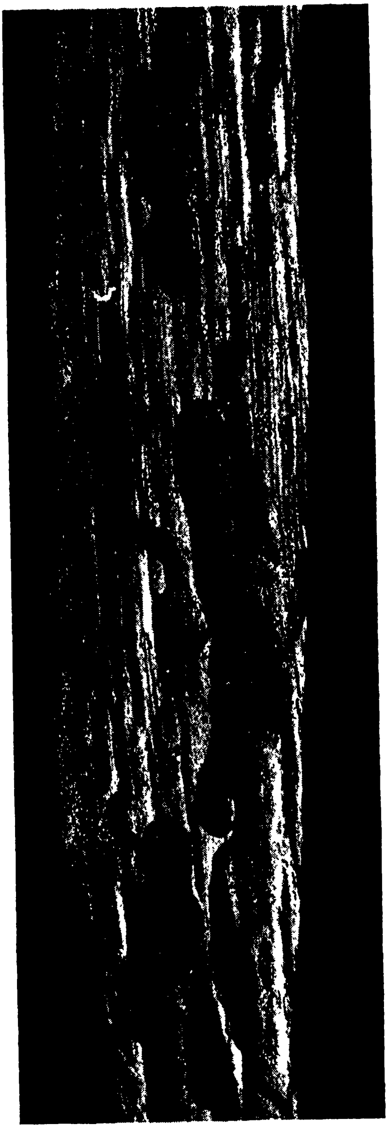

Fig. 24. *English Oak showing the borings of the larvæ of* Callidium violaceum.

Natural size.

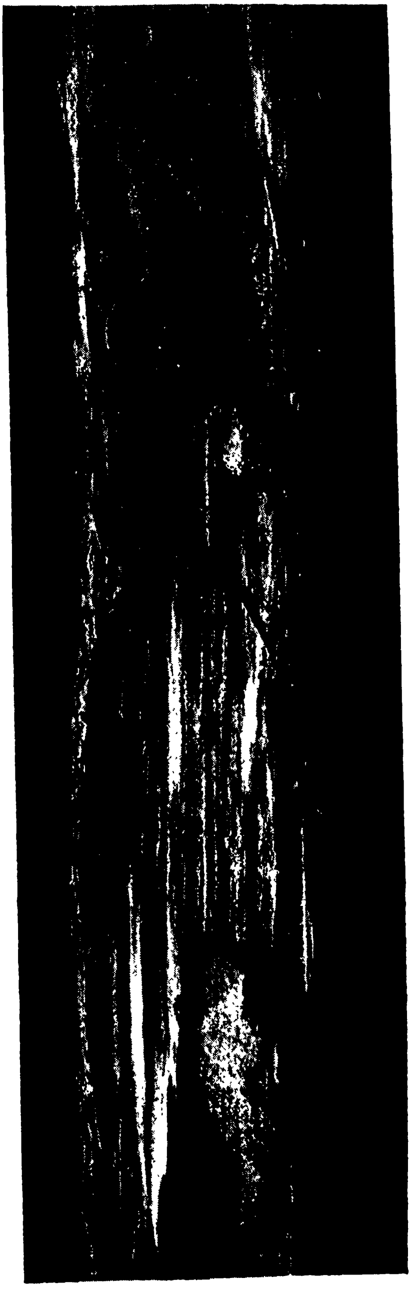

Fig. 25. *The work of the larvæ of* Phymatodes sanguineus.

Natural size.

of the male are four times as long as the body, those of the female twice as long as the body. Other such beetles are *C. violaceum* (Fig. 24), *C. variabile* (Fig. 23), and *Phymatodes sanguineus* (Fig. 25), troublesome in various species of broad-leaved trees. The two latter were sent to me in the summer from stored unseasoned timber.

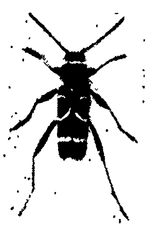

Fig. 26.
Clytus arietis.
Natural size.

An allied Longicorn is *Hylotrupes bajulus*, interesting because its larvæ are found in worked timber. *Hylotrupes bajulus* means the labourer that bores in timber. I do not think there is any record from Scotland, and I have not seen its work in England—it has been recorded from the south,—but I know its work on the continent. I have an excellent example of its damage in my collection. The beam of a house in Germany—where I collected my specimen—had been very badly attacked. My specimen shows well the characteristic work of the Hylotrupes grubs. The outside of the beam

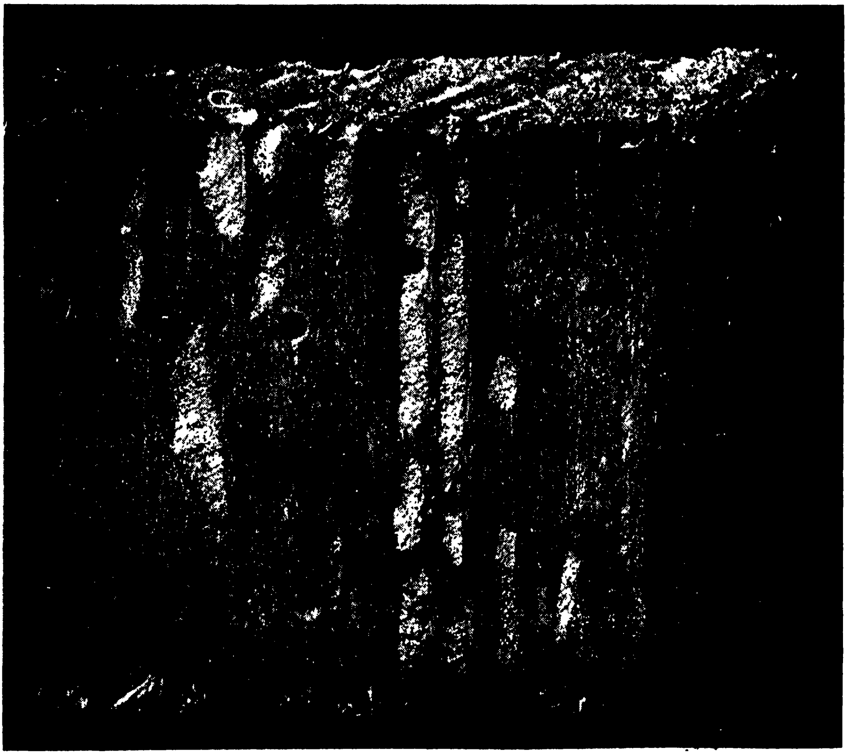

Fig. 27.—*Work of larvæ of* Neoclytus caprea *in Ash imported from the United States.*

Natural size.

looks sound enough except for a few flight-holes, but just below the outside and right to the centre the beam is rotten and powdery.

Mention has been made above of how easily species whose grubs work in wood can be transported to other countries and become acclimatised. Here is an example. A considerable time ago some beetles came to me for identification and report. The beetles belonged to the Longicorn subfamily Clytidæ or Wasp Beetles, so called from some of them being banded like wasps (Fig. 26). The beetles had been taken from American ash which had been imported and for some time stacked at an important centre. In time the ash was seen to be badly infested by the American long-horned beetle *Neoclytus caprea*, the Banded Ash-Borer. The stack of timber attacked was at once broken down, and the stock of American ash was used up as quickly as possible. About two years later a load of English ash, which had been drawn from the top of a stack of English ash, was being cut up. It was then found that one plank was honeycombed (Fig. 27) in a manner similar to what had been found in the American ash. Adult beetles were obtained, and on examination they proved to be *N. caprea*. *N. caprea* had issued from the American ash and had laid their eggs in the English ash.

The whole subject of insect damage to stacked and worked timber is assuming greater prominence, and the Forestry Commission and the Forest Products Research Laboratory are working hard to minimise losses and discover reliable methods of control. In this connection I would strongly recommend Forestry Commission Bulletin No. 9 on "Beetles Injurious to Timber," by Dr J. W. Munro.

THE SOCIAL WASPS.

The past summer and autumn was characterised by a plague of wasps—indeed, 1928 will be quoted as a wasp year. Complaint was common regarding attack on human beings and other animals. In many places in the south, fruit-picking had to be suspended owing to the crowds of wasps in the trees. From a sweetmeat factory in Northampton the manufacturer reported the capture of about 1,000,000 wasps in three weeks. It is in such circumstances that one should recall that there is another side to the wasp's life in the partly compensating destruction of much insect prey. It is difficult, too, for any one who has given some study to wasps to forget their activity, their industry, and their skill.

Everybody knows the difference by headmark between a bee and a wasp, but it is different when one comes to ask how actually the two insects differ. Well, on the whole, bees are hairier than wasps, and some at least of a bee's hairs are feather-like, while the hairs of a wasp are simple. An easy-to-follow character is this, that the first joint of the tarsus or foot of a bee (the foot is 5-jointed in both bee and wasp) is dilated and enlarged and different from the other joints (only in a very few cases is this difficult to see), whereas all the joints of the wasp's foot are similar in shape. Bee grubs are vegetarian in diet, the mixture of honey and pollen providing the necessary energy-giving and flesh or muscle-building materials. The grubs of wasps are in the main carnivorous. The cells of the Social Bees (hive bees and bumble bees) are composed of wax, the cells of the Social Wasps are made of wasp-paper.

There are two kinds of wasp: the Social wasps, whose species live in communities, with three castes in the community—males, queens, workers (females that cannot mate), and Solitary wasps, where there is no worker caste, but only males and females. After pairing, the female Solitary wasp prepares a burrow, and provisions it with caught insect or allied animal prey—*e.g.*, aphides, beetles, flies, locusts, caterpillars, spiders; an egg is placed in a burrow with such provision, and the wasp grub on hatching proceeds to its business of feeding.

It is with the Social wasps that we are concerned at the moment, and of these there are seven British species. One of the seven is a cuckoo—scarcely a guest,—making no nest for itself, but living in the nest of one of the other wasps named *Vespa rufa*. The cuckoo-wasp (*V. austriaca*) has no worker caste, but only males and females; the rearing of the cuckoo-wasp's brood is undertaken by the *V. rufa* workers.

In the communities of the other six species three castes are present—males, queens, and workers or imperfect females. The males are developed somewhat late in the season, and are serviceable only in fertilising the perfect females known as queens; the males have a short life. The communities are really female societies; the government is a matriarchy. The queen is at once the foundress and ruler of the nest. She is, until young queens are reared towards the end of the season, the only perfect female in the bink or nest, the head of "a city of very fierce ladies," as Frances Pitt describes the workers, "awe-inspiring ladies, clad in black and gold armour, armed with barbed and poisoned weapons, uncertain of temper, and apt to be shrewish." Of course, there is another side to the story, for these workers sometimes put in an eighteen hours' day, attending to all the duties of the nest other than the laying of the eggs, and collecting food for the grubs, and tending and rearing these with great devotion.

The workers do not grow any larger once they have reached the adult stage, and so there is little or no demand or need on their part for proteid substance to build up body tissue. What the workers require is food—*i.e.*, fuel to run the machine, food that can be used up or burned to supply the energy necessary for their active and toilsome life, hence the diet of the adult is chiefly honey and sweets. The wasp grubs, on the other hand, live in cells, and have no locomotor exertion. They are cold-blooded, and do not need foods to keep up a body temperature. What is necessary is chiefly protein or nitrogenous material to build up the body of the grub and to carry on the changes which will result in the development of the adult, and hence the diet of the grubs is mainly a flesh diet.

The worker wasps prey on insects and visit carrion, carrying back and breaking up and preparing carried-home prey, which is then offered to the grubs. Flies of different kinds, including daddy-longlegs, house-flies and blue-bottles, caterpillars, small moths and butterflies, bees, earwigs, small pieces of flesh, are all carried home; hard or non-nutritious parts like legs and heads and wings may first be bitten and pulled away before the wasp flies off with its load. W. F. Denning, a student of the wasps, wrote thus to 'Nature'[1]: "Wasps kill an enormous number of flies of all kinds. I found that the numbers of a comparatively small nest of *V. germanica* brought home at least 2000 flies per day. A very strong nest would account for twelve times as many." Among the insects captured for food there will naturally be a proportion of useful insects.

An interesting feature in the economy of the Social wasps is the mutual exchange of food[2] between the workers, acting as nurses, and the grubs. When, for example, the worker gives up from its crop the food, prepared for the most part from chewed-up insects, the grub accepts the offered food, and responds by exuding a drop of saliva or fluid containing sugar, and this is greedily accepted by the nurse.

How to tell the British Social Wasps.—In response to repeated questions as to distinction of species, I give below 'keys' that may be found helpful. The characters chosen to bring out the differences are such as are visible to an observant eye, but an ordinary simple hand-lens would be an advantage. First, however, a few terms need explanation.

The body, as in insects generally, is divided into three regions—head, thorax with three pairs of legs, and abdomen. The head of a wasp is attached behind to the thorax by a small joining, and hangs vertically. As necessary to the understanding of what follows, I wish to refer to the antennæ, the eyes, the mouth parts, and the clypeus.

If one look into the face of a wasp, the two antennæ will be seen. Each has a large basal joint known as the *scape*, followed by the other smaller joints that make up the whip or *flagellum*. On each side of the head is a large kidney-shaped compound eye, each eye having many facets, and on the forehead there are three small dots, the simple eyes, arranged in a triangle.

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[1] 'Nature,' 13. 5. 20.

[2] This mutual exchange is known as 'Trophallaxis': it is practised also by Ants and White Ants (*Termites*).

Below the compound eyes, and below the antennæ, and immediately above the jaws, is an almost square yellow plate known as the *clypeus*. Lower down than the clypeus, and at the lowest part of the head, are the mandibles or jaws, strong and toothed; they move laterally. Behind the mandibles we have the jointed maxillæ, and behind these and in the middle line the labium, flattened and lobed in front and used for spreading the wasp-paper pulp in the making of the nest. The mouth parts of the wasp, then, are serviceable for biting, chewing, licking or lapping, and as a trowel.

The seven British Social wasps are—*Vespa crabro*, *V. vulgaris*, *V. germanica*, *V. rufa*, *V. sylvestris*, *V. norvegica*, and *V. austriaca*, which does not make a nest of its own, but lives in the nests of *V. rufa*.

How to recognise the Males.

Male.	*Queen and Worker.*
Antennæ with 13 joints—viz., a scape with a 12-jointed whip.	Antennæ with 12 joints—viz., scape and an 11-jointed whip.
Abdomen with 7 visible joints—No sting.	Abdomen with 6 visible joints—A sting.
The scape always with a yellow stripe.	The scape sometimes yellow, sometimes all black.
Looks longer and narrower.	

Recognition of Species.—The following key is adapted from Saunders, with modifications:—

I. Thorax red-brown. *V. crabro.*
II. Thorax black and yellow.
  1. Face short—*i.e.*, the large compound eyes almost touch the base of the jaws (mandibles).
    A. Abdomen yellow and black, the black markings being quite distinct.
      a. Abdomen dull, scape black in worker and female.
        x. Yellow stripe on each side of the joint behind the head with parallel sides. *V. vulgaris.*
        y. The yellow stripe on each side of the joint behind the head bulging or convex on its lower side. *V. germanica.*
      b. Abdomen glossy and with thick black hairs; tibiæ (shanks) with long projecting hairs. *V. austriaca.*
    B. Abdomen yellow and black, but the black marks not well defined but blurred with brown; abdomen glossy. *V. rufa.*

2. Face long—*i.e.*, a distinct space between the eyes and the base of the jaws (mandibles).

A. Clypeus with a small black dot in the centre ; abdomen with no red markings. *V. sylvestris.*

B. Clypeus with a black central vertical stripe. *V. norvegica.*

Colour and Marking on the Clypeus as an aid to the Distinction of Species.

Species.	*Male.*	*Female.*	*Worker.*
V. vulgaris and *V. rufa.*	Clypeus yellow.	Clypeus yellow.	Clypeus yellow.
	A vertical black stripe runs from the centre of the top of the clypeus, but does not as a rule reach the lower edge ; the result is a black figure suggesting an anchor.		A vertical black stripe which reaches the lower edge of the clypeus. It broadens out on each side just before it reaches the lower edge.
V. germanica.	Clypeus yellow.	Clypeus yellow.	Clypeus yellow.
	Three small black dots on the clypeus, and no black stripe.		A black stripe from centre of upper edge continued part of the way down, followed by two black dots.
V. austriaca.	Clypeus yellow.	Clypeus yellow.	No worker caste.
	No stripe on the clypeus, but three dark dots.		
V. sylvestris.	A single black dot in the centre of the yellow in all three castes.		
V. norvegica.	A broad and heavy black stripe on the yellow clypeus : the stripe broadens out into an anchor-like pattern.		

The Antennæ as helpful in separating Species.

Species.	*Male.*	*Female.*	*Worker.*
V. vulgaris.	Scape with yellow stripe.	Scape black.	Scape black.
V. germanica.	Scape with yellow stripe.	Scape black.	Scape black.
V. rufa.	Scape with yellow stripe.	Scape black.	Scape black.
		(Rarely a yellow stripe.)	
V. austriaca.	Scape with yellow stripe.	Scape with yellow stripe.	No worker caste.
V. sylvestris.	Scape with yellow stripe.	Scape with yellow stripe.	Scape with yellow stripe.
V. norvegica.	Scape with yellow stripe.	Scape with yellow stripe.	Scape with yellow stripe.

In the above, the Hornet (*V. crabro*) has, save once, not been included. This is because *V. crabro* should not be confused with any of the other Social wasps. It is much larger than the others ; it is brown where the others are black, and the bright yellow in the other wasps is orange in the hornet. In a word, the hornet is a large brown and orange-yellow wasp. It is not found in Scotland.

The Nests.

By means of their jaws the wasps gnaw away splinters or particles of wood from fence-posts or pieces of fibrous plants or the outside of stems (I have watched them stripping off ribbons of paper from a newly pasted bill) ; the gnawed-off particles are worked up by the mouth parts along with a secretion of saliva into a pulp known as wasp-paper, and this is the material from which the nests are made. As a rule the nests of *vulgaris*, *germanica*, and *rufa* are underground, while those of *sylvestris* and *norvegica* are suspended from trees or bushes, though they may be in hollows in trees. Now and again, however, the nests of the underground species may be above ground—*e.g.*, under the shelter of an outhouse, or suspended from a roof. There are two types of pattern—a shell-like pattern, where the wasp-paper plaster is arranged in a shell-like pattern, as in the nests of *vulgaris* and *germanica* (Fig. 28), and the laminar pattern of *sylvestris*, *norvegica*, and *rufa*, where the wasp-paper is arranged in horizontal sheets or bands or stripes that run round the nest more or less parallel to one another (Fig. 29). The nests are very friable, and easily fall to pieces when at the end of the season they have been left empty.

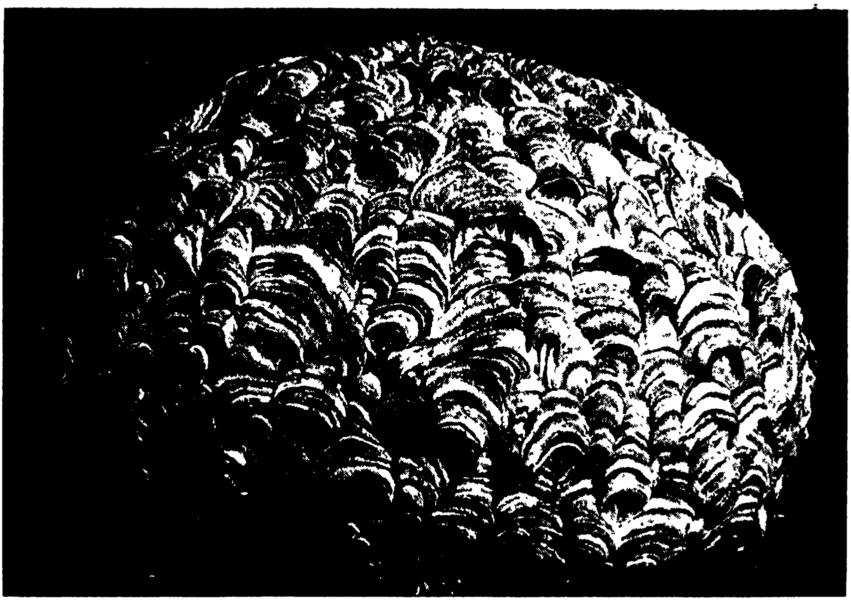

Fig. 28.—*Nest of* Vespa vulgaris.

From nature. Reduced in size. To show the shell-like pattern of the outside of the nest.

The Year's Round of Life.

Wasps do not store up reserves of food like the hive bee, and the whole community perishes at the end of the season, save for the young queens of the year, which, having been fertilised, seek out shelter places, where they remain dormant over the winter and early spring. Such hibernating females may be found suspended by their mandibles with their legs folded, the antennæ held downwards under the first pair of legs, and the wings folded down over the under side of the body.

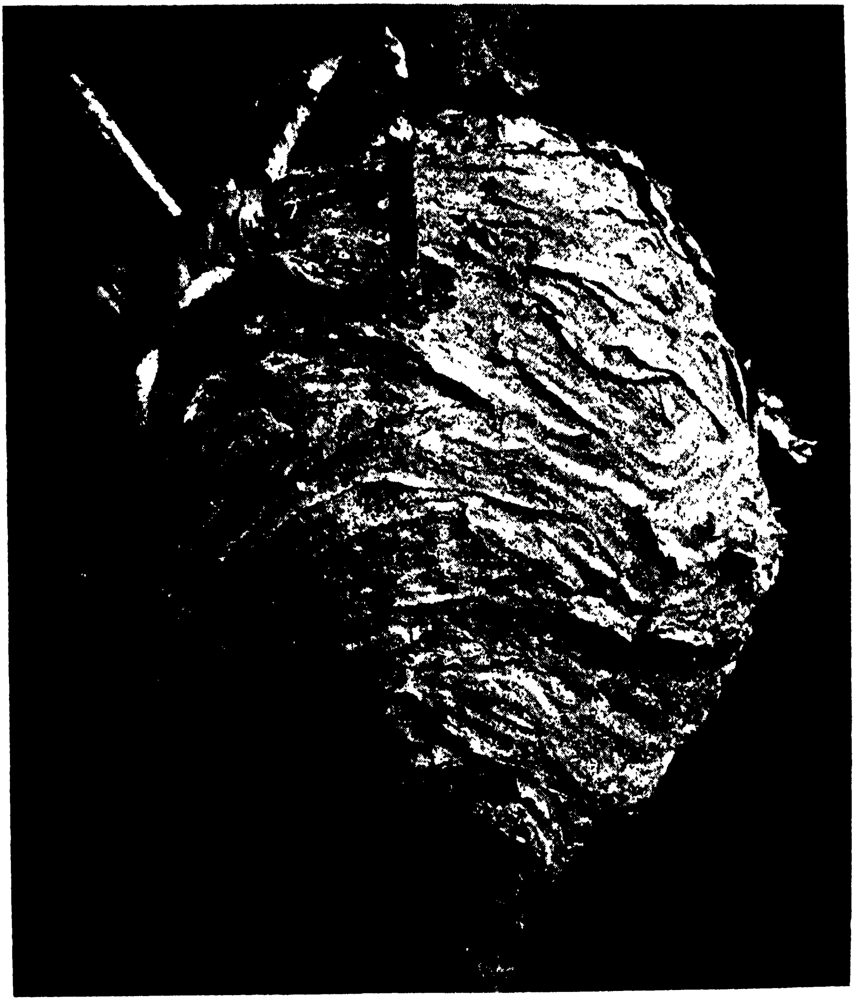

Fig. 29.—*Nest of* Vespa sylvestris.

As an example of an above ground tree nest. From nature.

In the following April or May the wintering queens come out of their shelter places. Queens are sometimes seen in the open in March, and on occasion earlier, tempted out by exceptional sunny weather. Each such queen is the potential foundress of a new nest. At first she is without shelter, but she seeks out a suitable place for a nest, in a hole or hollow or convenient place in rick or bush or tree. A little disc or cap of wasp-paper is attached to the roof or projecting root or straw or branch, and a short stalk is broadened out to support the first cells, four in number ; the cells are not at once completed to their later height. Other cells are added up to eight or ten or twelve. The cells are closed above and open below. These cells are then surrounded by an envelope or dome or cup-shaped cover of wasp-paper, to which from the stalk above, downwards, other protecting sheets are added ; the entrance hole is below. The queen lays an egg in each completed cell, the egg being cemented into the cell to prevent it falling out. The eggs hatch, and the queen has to act as huntress and purveyor, and as nurse, once the food—chiefly animal juices—has been found and prepared. The grubs at first are prevented from falling out of the cell by being held in the original part of the cemented egg-shell, and later by their curved shape. The grubs moult several times, and on becoming full grown spin a cocoon of silk, the open mouth of the cell being covered over by a tough silk, which bulges somewhat in the centre (Fig. 30). The full-fed grub ready for pupation rids itself of accumulated excrement ; this excretion remains fixed and flattened at the top of the cell. The last moult then takes place revealing the pupa, which in outline resembles the mature insect. Gradually the parts harden and darken, organs are perfected, and the insect frees itself from the pupal sheath and bites its way out of the cell. The newly issued wasp clings to the comb, and after a short space undertakes duties in the nest, and then acts as a forager. A month to six weeks is the time taken from egg to the developed adult stage. The first wasps developed are always workers, and the queen, who has been continuing to make cells and to lay eggs in them, now devotes herself to the laying of eggs, the other duties being taken over by the earliest and later workers. The nest is enlarged as new cells are made, the old envelopes being cut away to allow for extension and new ones laid down. The layers of envelopes serve to keep the combs dry, and, by enclosing layers of air, serve to keep up the temperature. For the enlargement of the nest underground forms like *vulgaris* and *germanica* have to make excavations, and some of the stones or débris carried away and dropped outside the nest may weigh three and four times heavier than the wasp itself. As the population of workers increases new floors or combs of cells are added, always from above downwards, each new floor being supported on buttresses or pillars of wasp-paper hanging from the preceding floor (Fig. 31). The new floors are arranged horizontally, and there is always space between floor and floor, and between the floors or combs and the innermost envelope, to allow of the free movement of the wasps. The original foundation for the nest laid down by the queen is strengthened to provide against the increasing weight it has to bear. During the season, cells in which grubs have been reared to the adult condition are partially cleaned out and used again; it may be as often as three times. Twenty to forty thousand or more wasps may have been reared in a strong nest in a season, though smaller numbers are commoner. As the season runs on, males or drones (the drones are from unfertilised eggs) are produced, and perfect females or queens.

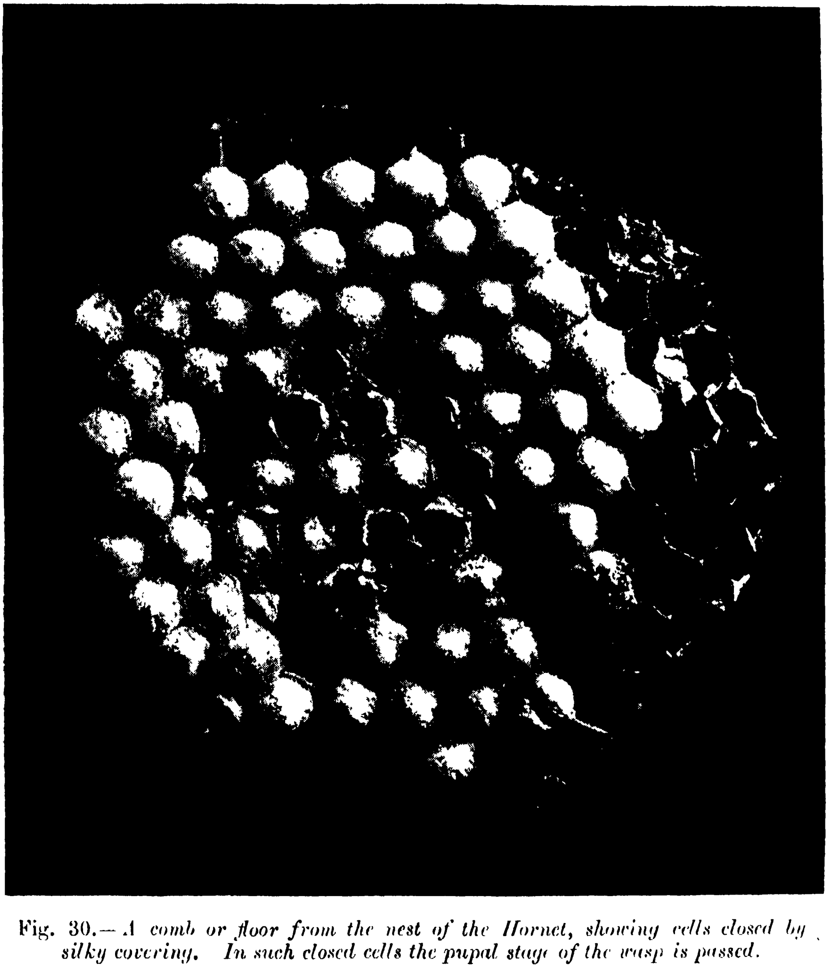

Fig. 30.—*A comb or floor from the nest of the Hornet, showing cells closed by silky covering. In such closed cells the pupal stage of the wasp is passed.*

From nature. Natural size.

The males and the queens are reared towards the end of the season, the queens especially being reared in cells of larger size. The young queens are fertilised, and leave the nest for shelter places; the males soon die.

Examination of a wasp's nest and the space below it would reveal a number of other insects and mites. A good deal of débris falls to the ground, pieces of the cut-away wasp-paper, particles of fallen food, wasp excrement—for the inmates of the nest come to the outside to void their waste,—and general litter. In the litter, scavenging-fly maggots and scavenging beetles and their larvæ may be found, and numerous mites; parasitic insects also take toll of the wasp grubs.

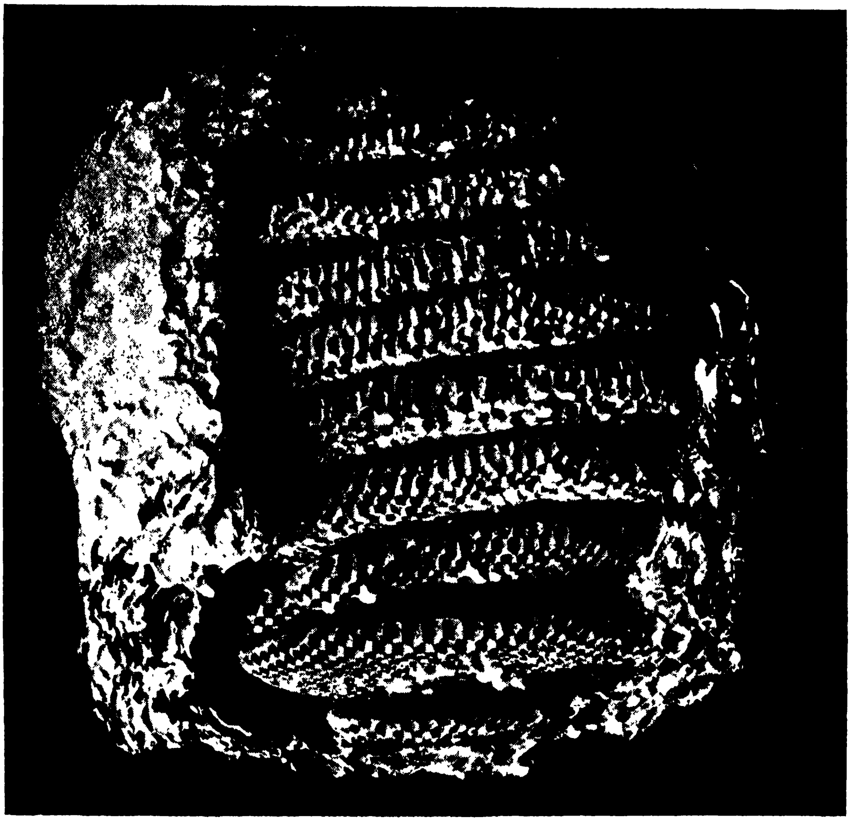

Fig. 31.—*Nest of* Vespa vulgaris *with envelopes cut away to expose the combs or floors.*
From nature. Reduced to about half natural size.

As autumn approaches there is a slowing down in the nest. The old queen, exhausted, ceases to lay, workers die off from cold and wet, and grubs remaining are not fed but may be eaten. Ultimately the old queen dies, all the inmates of the nest die, and the nest itself soon breaks down.

The Economic Importance of Wasps.

It must be admitted that wasps destroy great numbers of insects. They are also of service in the pollination of flowers.

But as against this they often prove a nuisance, and sometimes a positive danger on account of the stinging that follows irritation. How irrepressibly importunate they are at *al fresco* meals with sweets and jam on the table !

When nests are disturbed by reapers in the fields or are ploughed up, then workers and horses suffer.

Wasps can also be excessively destructive to fruit—apples, pear, plum, cherry, and so on. They not only take fruit already wounded, but attack and wound quite sound fruits, and these often the choicest of their kind. On these fruits and on fallen decaying fruit the wasps gorge themselves, sometimes—on the honey and sugar—to intoxication.

Bee-hives may be looted.

Bees themselves, lying on their backs under the lime-trees, helpless from over-indulgence in the lime-flower nectar, fall an easy prey to the marauding wasp.

Sometimes the wasps themselves are intoxicated from over-indulgence on the copiously exuded honey-dew of certain aphids, and from gorging on ripe and rotting fruits. This weakness "of the yellow burglar for strong drink," is taken advantage of in fighting the wasp. Jars or narrow-necked bottles containing sweetened beer or syrup or honey or sweetened water and beer are placed or hung here and there among the fruit trees, and the visiting wasps are trapped in large numbers. As a writer of light verse, referring to the adult wasp's fondness for sweets, writes :—

"A jar, half full of sugared beer,
Is clearly indicated here.
Thus may I lure him [1] to his fall,
  Drink is the rock that he will crash on,
To start with cocktails after all,
  Is strictly in the modern fashion.
But once the fellow has his fling,
He always overdoes the thing."

It is only workers that are trapped by this means ; the queen, who remains at home, is responsible for the increase in the population.

Where wasps have to be fought, then the queens should be collected, as each queen caught is the potential founder of a nest. One can be safe in looking upon every Social wasp found in the open until the end of May as a Queen.

Or a proportion of the nests can be destroyed. A small ladleful of melted tar emptied into the entrance hole of an underground species—and it is *vulgaris* and *germanica* that give the most trouble—is effective. So also is the pouring in of some paraffin. Paraffin can also usefully be poured on to a hanging nest.

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[1] The "him" should be "her," and the gender ought to be feminine all through ; it is a case of poetic licence or perhaps the poet didn't know.

A plug of cotton wool soaked in bisulphide of carbon and pushed into the opening of the nest is effective against both underground and tree nests. *It should be noted, however, that not only are bisulphide-of-carbon fumes poisonous, but the vapour is explosive in the presence of a light of any kind.* Very effective also is cyanide of potassium (*a very dangerous poison*). A solid piece of cyanide of potassium rolled in a plug of cotton-wool and introduced into the entrance hole of the nest will destroy the inmates. Or a plug of cotton-wool soaked in a solution of cyanide of potassium (one ounce of cyanide of potassium to a pint of warm water) could be introduced to the nest, or some of the solution poured into it. It adds certainty if the nest is then dug and broken up.

A last word must be that any complete destruction of wasps might easily be followed by a worse plague.

TWO COMMON INSECT ENEMIES OF GOOSEBERRY AND CURRANT.

It is true to say that not a year passes without requests for information as to the Magpie or Gooseberry and Currant Moth (*Abraxas grossulariata*) and the Gooseberry and Currant Sawfly (*Pteronus* or *Nematus ribesii*), two enemies which continue to be troublesome, although with care their control is not difficult. In spite of the marked differences between the two insects in their different stages and in their life-histories, they continue to be confused. How different the two pests really are should be clear from what follows :—

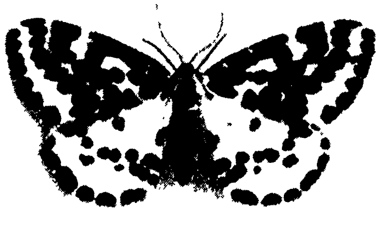

Fig. 32.—*The Magpie Moth.*

From nature. Natural size.

Magpie Moth.	*Gooseberry and Currant Sawfly.*
Is black and white and yellow, as seen in Fig. 32. Much more conspicuous in appearance than the Sawfly from its size and colour.	A 4-winged insect, with the wings clear and membranous; belongs to the same Order as the bees and wasps; measures just over $\frac{1}{3}$ inch in length and $\frac{1}{2}$ inch in spread of wings; the prevailing colour is pale yellow, with dark spots on the thorax.
Moths found in flight in July and August, and not again. There is one generation in a year.	The sawflies are first in flight in April and May. The development from egg to adult takes about two months; in favouring conditions three generations are possible from spring to autumn.
Eggs laid singly or in small groups on the leaves in July and August, and the caterpillars hatch in a fortnight.	Eggs of first brood laid in April and May on underside of leaves close to veins (Fig. 33). Eggs hatch in a week.

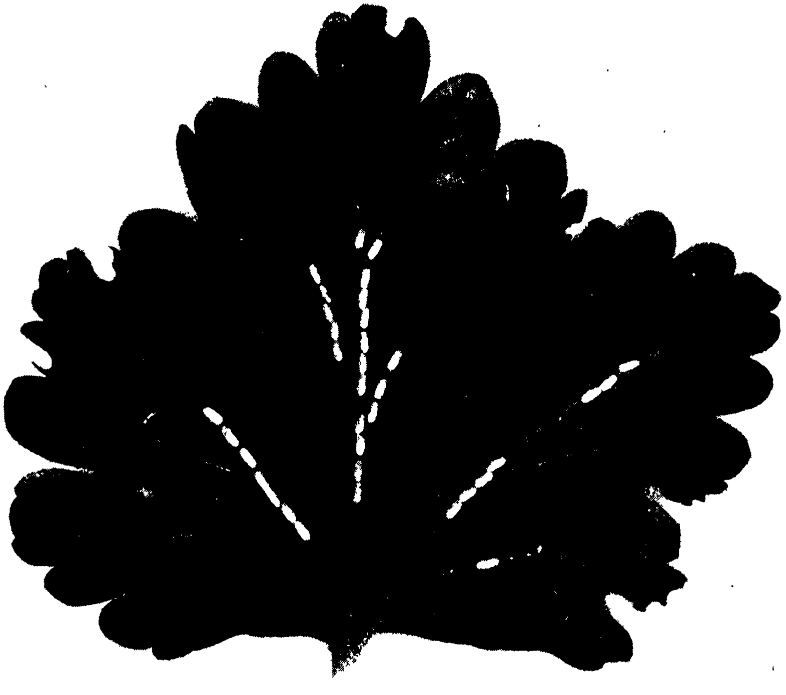

Fig. 33. -*Eggs of Gooseberry and Currant Sawfly.*

From nature. Magnified.

Magpie Moth.

The caterpillars on hatching are dark in colour, but on renewing their feeding in spring after coming from their winter quarters are more or less cream-coloured, with a row of squarish, black, velvety spots down the middle of the back. The spiracular line is reddish-orange with rows of black spots above and below it; spiracles black. The caterpillar is a looper or spanner with only 10 legs; the full-grown caterpillar measures up to 1½ inch (Fig. 34).

Gooseberry and Currant Sawfly.

The caterpillar varies in colour in different stages; newly hatched it is greenish-white, dotted with black on the sides; the pale colour changes to green as the caterpillar feeds; after a month the head is black and the body green, with a large number of scattered black dots (Fig. 35); in its last stage the colour is pale green (Fig. 35), with the front and hind end orange; the head in the last stage is pale, with black dots, but no black dots show on the body. The legs are 20 in number. The full-grown caterpillar measures ¾ inch.

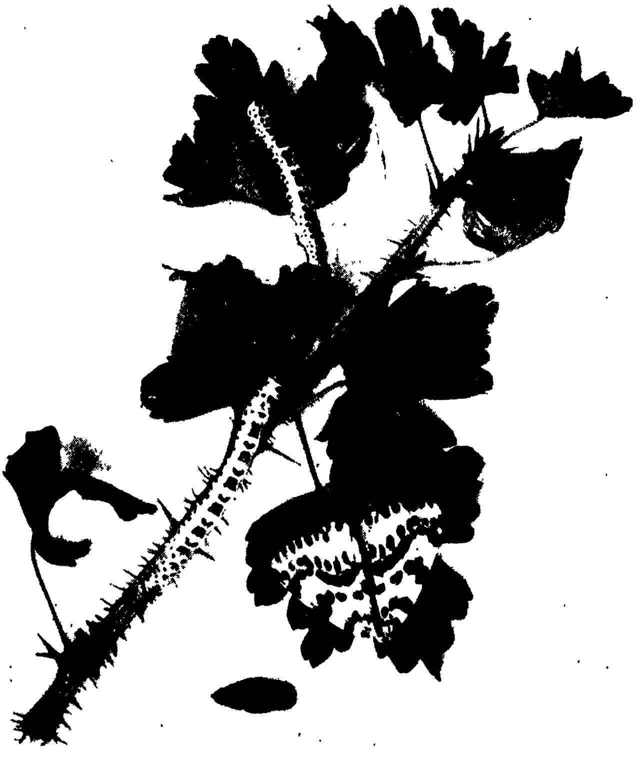

Fig. 34.—*The Magpie Moth, caterpillar, and pupa.*

From a preparation in my collection. Reduced.

Fig. 35.—*The upper figure shows the caterpillar in the "spotted stage"; the lower figure is that of the caterpillar in its final stage.*

From nature. Magnified 3½ times.

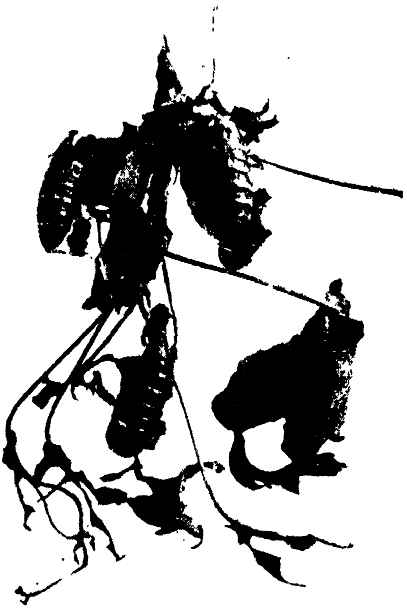

Fig. 36.—*Pupæ of Magpie Moth.*

From nature. Natural size.

Magpie Moth.	*Gooseberry and Currant Sawfly.*
The caterpillars feed till autumn. When only partly grown they go into winter quarters, lying sheltered in fallen leaves, or in the soil litter or soil under or adjoining the food plants, or in moss or lichen on the bushes, or, in the case of bushes against walls, in cracks in the wall. In the next spring the caterpillars come from their winter shelters as the food plants are coming into leaf, and now they do their worst work, for the plant has expended reserve in unfolding its leaves, and now deprived of these feeding organs on whose activity fruit formation depends, it is still further weakened by the drain on it in having to furnish a second set of leaves which may also be destroyed.	The caterpillars are full grown in three weeks to a month, when they leave the plant and pass into the soil for pupation. The pupal stage lasts for three weeks, when the second brood of sawflies comes away. Defoliation means loss of feeding and breathing and transpiring area. There is consequent failure in fruit, and the repeatedly attacked plants may die; or if the plants survive, they have lost so much reserve and are so weakened that fruit may fail in the next season.
The caterpillar, full fed in June, pupates under cover of a slight cocoon. The pupa is shining black, with complete and incomplete yellow rings. The cocoons, with their enclosed pupæ, are found on the food plant hanging from leaf or branch (Fig. 36), or on fences near at hand, or walls. By a month the adults have issued.	The cocoons are in the soil under the food plant or the soil litter and rubbish. The cocoons of the last brood lie in the soil over the winter, the first adults appearing in the next April or May. It will be clear from the above that unless means are taken to prevent it, attack will become progressively worse. While there are three broods in the year there is considerable overlapping, so that some adult sawflies may be at their egg-laying over the whole season.
The caterpillars are more destructive in gardens than in large orchards. Gooseberry is the favourite food plant, and black-currant is preferred to red. Rosaceous fruit-trees like apricot and plum are among the food plants, and damage has been recorded on blackthorn, hazel, spindle-tree; one of the complaints this year related to defoliation of a spindle-tree in an Edinburgh garden. I have a record of the caterpillars feeding on couch grass, which chanced to be growing under gooseberry bushes.	Gooseberry is the favourite food plant, and red-currant is more in favour than black.

Control.

In the case of the Magpie Moth the young caterpillars should be destroyed in autumn by means of an arsenate of lead spray, 1 lb. arsenate of lead paste to 20 gallons of water, care being taken to reach the underside of the leaves. The bushes should be examined after leaf-fall, and any loose leaves that may be sheltering the wintering caterpillars collected.

Watch for the appearance of the caterpillars on the plants in spring, so that these may be hand-picked or poisoned by an arsenate of lead spray. This spring spraying should be done as soon as the leaves have expanded, and before the flowers have opened out for insect visit, otherwise bees visiting the flowers will be poisoned. It is because the time available for the spring arsenate of lead spray is so restricted that another spray—viz., Hellebore powder, 2 lb.; soft soap, 1 lb.; water, 10 gallons—has been recommended. Hellebore, although poisonous, loses quickly, in a spray, its poisonous properties. The Hellebore spray may be safely used any time up to a month before the picking of the berries. Hellebore does not dissolve, therefore the spray fluid should be kept agitated. Sometimes, even to the time of the showing of the young fruits, an arsenate of lead spray is used, but there is some risk from the poisoning of the fruit.

The caterpillars of the Magpie Moth are conspicuously coloured, and being nauseous to the taste, so that birds generally will not eat them, are sometimes quoted as an example of what is known as warning coloration. The conspicuously coloured insect, associated with some quality that makes it unpalatable to the bird (or other enemy), assures itself of being readily recognised, and therefore spared. In spite of denial, post-mortem examination of stomach contents of the cuckoo has proved that this bird takes Magpie Moth caterpillars. In two cuckoos shot in different localities in May, both contained, on examination by Professor Newstead, numerous Magpie Moth caterpillars, while a third shot in May of another year revealed on examination two full-fed Magpie caterpillars, and ninety caterpillars of the Gooseberry and Currant Sawfly.

As regards the Gooseberry and Currant Sawfly, leaves with many eggs should be pulled and destroyed. On a garden scale the caterpillars should be hand-picked. The caterpillars are poisoned by the arsenate of lead and the Hellebore sprays described for the Magpie Moth, but the same precautions are necessary.

If the Sawfly caterpillars have been at work during the summer, the soil below the bushes should be removed, where possible, for a depth of two inches, with a replacement of fresh soil and manure. This should be done in winter, the purpose being to get rid of the cocoons from which the spring adults would otherwise come.

THE RASPBERRY MOTH (*Lampronia rubiella*).

From the North of Scotland a raspberry shoot containing the caterpillar of this moth came for identification and report. The moth has a wide distribution over the country, and the caterpillar can be very destructive, owing to its habit of boring into buds and young shoots, causing their death, with consequent loss of flowers and fruit.

The moth is a small one measuring less than ½ inch in spread of wing; the wings are brown or purplish-brown, with yellow dots or spots on the front wings, the two most prominent being on the inner margin. The moths are found at the end of May and in June flying round the raspberry canes. The eggs are laid in the flowers.

The life-history is an interesting one, as the caterpillar feeds in two different parts of the plant, the two different periods and places of feeding being separated by a retirement to a winter place of shelter. The eggs laid in the flowers soon hatch, and the caterpillar enters the receptacle on which the fruit is formed. In this stage little or no damage seems to be done. The caterpillars leave the fruits before these ripen, and pass into the soil under the plants and into crevices in the supporting stakes or under the rough rind of the stems. In such places the caterpillars shelter, each under cover of a small cocoon of silk, until the next April, when they again become active; they crawl up the raspberry canes, eat into the buds on the shoots, and burrow into the shoot. The caterpillar feeds in the shoot from a month to six weeks, and then pupates in the hollowed shoot. The length of the pupal stage is from three weeks to a month.

The full-grown caterpillar measures ¼ inch in length; the colour is pink, darkening to red with the growth of the caterpillar; the head is black, as is also a plate on the upper surface of the joint behind the head; the caterpillar has sixteen legs. The pupa is reddish-yellow to brown, with a spine on the back of the last joint.

Control.

Dr Chapman, to whom we owe the details of the life-history, suggested as a preventive measure the raking away of rubbish from the stools and earthing up the stocks again. The rubbish should be destroyed, and this with the raking will result in destruction of sheltering caterpillars. Forking the ground round and between the stocks will destroy and bury sheltering caterpillars, these being in shelter from the end of summer to the following March. The removal and burning of stakes that were cracked and in need of repair lessens possible sheltering places.

The Ministry of Agriculture suggests as worthy of trial "the spraying the canes and the soil round the stools and all the stakes in winter with paraffin emulsion," the purpose being to soak the cocoons and so kill the sheltering caterpillars; and also "at the end of March the spraying of the canes and the soil round the stools and stakes heavily with limewash," as a preventive to the caterpillars climbing up to the buds. The formulæ given by the Ministry [1] for the paraffin emulsion and the limewash sprays are :—

Paraffin Emulsion :

Paraffin oil	1 gallon [2]
Soft soap	1½ to 2 lb.
Water	10 gallons.

How to Make.—Dissolve the soft soap in about a gallon of boiling water, remove the solution from near the fire, and, while still hot, add the paraffin. Churn the mixture very thoroughly by syringing it back into itself. When required for use add soft water to make 10 gallons, and mix again thoroughly so as to make sure there is no free paraffin floating on the surface.

Limewash :

Best quicklime	10 to 15 lb.
Water	10 gallons.

Obtain only best stone quicklime, and store carefully to prevent it air-slaking. Builder's lime, which is often partially air-slaked, should not be used. Slake the lime with a little water, and when slaked into a fine powder, add the remainder of the water, stirring vigorously the whole time. Strain carefully before filling the spraying machine, and keep the limewash well agitated throughout the application.

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[1] 'Collected Leaflets on Insect Pests of Fruit Trees.' Page 91. To be obtained at His Majesty's Stationery Office, and at the Ministry of Agriculture and Fisheries, 10 Whitehall Place, London.

[2] Note that this is winter strength and not to be used in the active growing season.

The cutting off and burning infested canes in April and May would account for caterpillars and pupæ. On a small scale one can keep the pest in check by nipping off the shoots as soon as they show signs of withering, and destroying them.

THE HEATHER BEETLE (*Lochmæa suturalis*).

The Heather Beetle, with a distribution in Scotland from Moray to the Solway, is perhaps best known for its destructive work in the west and south. The beetle belongs to the section of Leaf Eating Beetles, a section which includes the Willow Beetles, the Mustard Beetles, and the Turnip Fly and Flea Beetles.

The Heather Beetle is less than ¼ inch in length, and is yellow in colour, with the head black; there is considerable variation in shade, however, from light to dark; the head and thorax are glossy. I have found the eggs in numbers among the turfs of heather; they are round in shape, orange-yellow in colour, and the egg-shell under the microscope has a honeycomb-like pattern.

The larva is a grub dirty white in colour, with dark markings; the head is black, and carries the jawed mouth parts; the thorax carries six dark-coloured legs, and the body is wrinkled and warty. The pupa is cream-coloured, and shows dark bristles.

The beetles can be found among the heather from late spring onwards. There is an overlapping of generations, so that all stages—from egg to adult—may be found at the same time during summer and autumn. The destructive work of this insect is noticed specially from July on through August and September. I have had the grubs and also pupæ from Ayrshire in August, and on pulling apart turfs of heather in September numerous larvæ were got, and by the end of September many fresh newly-developed beetles were found. Typically the winter is passed in the adult stage. The beetles are sometimes present in heather moors in enormous numbers. From three small turfs sent to me from Dumfriesshire I collected nearly eighty beetles.

The damage is done by both the adult beetles and the grubs, the shoots and leaves of the heather being gnawed so that the attacked plants look reddish and withered as if frosted. Game birds—*e.g.*, Black Game—take the beetles readily. Mr Percy Grimshaw found in the crop of a pheasant shot in autumn in Argyllshire over 500 heather beetles.

TWO HOUSEHOLD PESTS.

The House Ant (*Monomorium pharaonis*). This little red or yellow-red ant has been carried in commerce all over the world. In temperate countries it lives entirely indoors, and in many parts of Britain it has become a pest in houses and places where sweets and comestibles are sold. I have had complaints from Aberdeenshire to the south of Scotland. The ants may be present in immense numbers. I have seen them in hundreds amid confectionery and fruit, and have known them trapped day after day in hundreds, and this to continue for weeks. Their numbers and their great power of multiplication make this ant very difficult to control, especially as the nests are often in inaccessible places behind masonry, under boilers, in the walls of houses, and so on. In a letter of some years ago one of my correspondents wrote: "We had the fireplace in our property removed, and a nest was discovered there and destroyed; but on the fires being again put on, the ants at once reappeared. All kinds of insecticides have been used without avail. Three and a half cwt. of sulphur have been burned, the doors and windows being all papered up to prevent the fumes escaping."

This House Ant feeds greedily on all kinds of sweets, cakes, fruit, sugar, oily seeds, fat, and it is also carnivorous. As regards their fondness for fat, a stone wall in a storeroom I know is marked all over with burnt areas. In fighting the ants in this place small pieces of fat, lard, rancid butter, were periodically placed here and there over the wall; the House Ants swarmed to and over these baits; then a lit taper applied to the traps destroyed the ants in hundreds. In writing of the voracity of this House Ant, Donisthorpe[1] tells how Daniel "utilised their penchant for meat in the preparation of skeletons. Removing the skin and most of the flesh from the small animals he wished to skeletonise, he placed them where the ants could get at them, and thus obtained over one hundred beautiful skeletons of small quadrupeds, birds, reptiles, and fishes, which he gave to the British Museum."

The community consists, as with other ant species, of males, queens, and smaller workers. The males and females are winged, but the wings are not used much in flight, and at or after mating are bitten off. The nest shows these dealated females. It is not difficult to locate at least the direction of the nest, for if a bait be laid down two lines of ants will be seen following tracks to the bait and back to the nest again. The first finders intimate the find to their neighbours, and soon the baits will be covered by swarms of ants.

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[1] 'British Ants, their Life-History and Classification,' by H. St J. K. Donisthorpe.

Control.

As already stated, the control is difficult. The best method would be the destruction of the nest, but the nests may be unreachable without considerable dismantling of the building. Further, all the labour may be useless unless treatment is general, for a new infection may easily follow from a neighbouring untreated place.

The plugging of the entrances to the nest with some cotton-wool soaked in paraffin is helpful as a repellent.

Place here and there where the ants are numerous pieces of sponge soaked in sugar and water; the ants swarm on to these, and every now and then the sponges should be lifted with their live cargo and dropped into boiling water. The destruction may so reduce and discourage the ants that the place will be deserted. I have seen hundreds and hundreds of this ant destroyed by their being lured to small pieces of sponge cake periodically dropped into boiling water.

As a protection for sweets, fruit, and other comestibles, these should be placed on tables the legs of which stand in a little paraffin.

In the American literature it is claimed that cotton tape steeped in corrosive sublimate (*note that corrosive sublimate or mercuric chloride is a very dangerous poison*) will not be crossed by Monomorium, and so the legs of tables and the edges of shelves holding food are fitted with a band or edging of such tape.

THE SILVER FISH (*Lepisma saccharina*).

Complaints regarding the Silver Fish were received from Edinburgh and Stirlingshire. In the second case they were only found near the fireplace. The correspondent was anxious in case Lepisma might harm young children. Of this there is no fear.

This agile little insect belongs to the Order of Bristle Tails or Thysanura, an Order of primitive insects that are wingless, and have no metamorphosis. Lepisma measures $\frac{1}{3}$ inch or just over this in length; the elongated body shows head, thorax, and abdomen; the thorax is the broadest part of the insect, whose body tapers to the hind end. The head carries two long antennæ, the eyes, and the mouth parts; the mandibles are toothed. The thorax bears three pairs of legs, each leg ending in two claws. From the last joint of the body three long, fine, easily-broken bristles project.

The insect has a silvery appearance, owing to the body being covered with minute scales. The life-history is very simple. From the egg there hatches a little form resembling in outline the parent, and with the same food habits. The young form feeds and grows and moults and becomes adult without any resting stage, and without any trace of wings.

Indoors in houses and libraries Lepisma is troublesome from its fondness for starch and materials containing starch, and therefore it is destructive to papers, to books and their bindings, to wall-papers, to labels in museums, to curtains, and so on. Lepisma is so agile that to catch it is not easy. If disturbed, when a pile of papers that may have been standing for some time is moved, Lepisma disappears like a flash. In trapping some for examination that were in papers standing on the floor under a table, I found that a fairly successful way to cut off escape was to sprinkle some water round about the papers previous to disturbing these; the escaping Lepisma were trapped in the moisture.

Lepisma can be kept in check by dusting fresh pyrethrum powder in places frequented by them. Metcalf and Flint[1] quote an effective control measure credited by them to G. J. Spencer—namely, sodium fluoride, as a poisoned bait. The formula is sodium fluoride,[2] 12 parts, in flour 100 parts by weight. The poison should be thoroughly mixed with the flour, and then scattered in the places infested by Lepisma.

Liver-Rot of Sheep.

In my report on "Insect and other Invertebrate Pests" of 1925, a resumé was given of the life-history of the liver-fluke of the sheep, and notes added regarding results of experimental treatment. It was mentioned in relation to the stages of the liver-fluke in the intermediate host—the Water Snail (*Limnæa truncatula*)—that the final form in the snail is known as the Cercaria. The Cercaria, which is really the young fluke, leaves the snail and passes into the water and swims about. After a free life of some hours to a day or two, the Cercaria, shedding its tail, creeps to a blade of grass, to which it anchors itself by the second sucker; a clear cyst is formed round it by the secretion of special glands. Under cover of the cyst development of the fluke is continued. This cyst is attached to a blade of grass, and the grass is eaten in due course by a grazing sheep. In the sheep's alimentary canal the cyst is digested and the little fluke set free. The mode of migration of the freed young fluke to the liver has been explained by Ssinitzin. It had previously been thought that the young flukes, passed up the cavity of the intestine, reached the bile-ducts, and crept up these, so reaching the liver. According to Ssinitzin the young fluke on being freed from the cyst burrows through the wall of the alimentary canal, migrates through the cavity of the abdomen, and on reaching the liver burrows into it from the outside.

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[1] 'Destructive and Useful Insects,' by Metcalf & Flint. The M'Graw-Hill Book Company.

[2] Workers with sodium fluoride should not have cuts or wounds on their hands, and the dust is irritating to nose and throat.

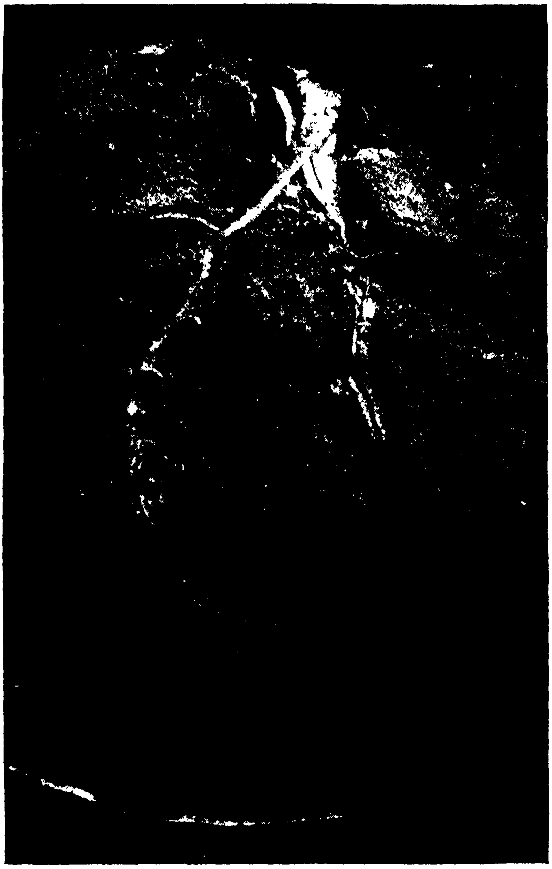

Fig. 37.—*Portion of healthy liver of Ox dissected so as to show normal bile-ducts.*

A post-mortem examination of a liver in an advanced stage of liver-rot would, among other changes, show the bile-ducts greatly thickened and their walls calcareous.

Fig. 37 is a photograph of a dissection of a piece of a normal ox's liver. Fig. 38 is a photograph of the same region of an ox's liver, the ox having suffered from liver-rot. In Fig. 38 the bile-ducts are seen to be enlarged, thickened, and misshapen from the presence of the liver-fluke (*Distomum hepaticum*).

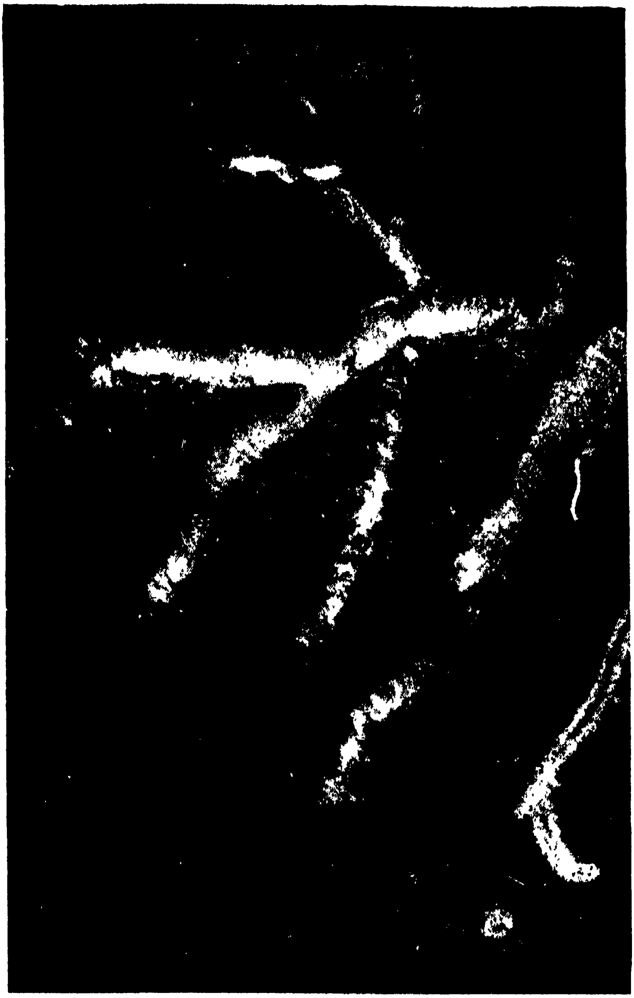

Fig. 38.—*Portion from the same region of the liver of an Ox suffering from liver-fluke. The dissection reveals the enlarged and misshapen bile-ducts.*

AGRICULTURAL RESEARCH IN SCOTLAND IN 1928.

BEING A BRIEF SUMMARY OF WORK AT THE SCOTTISH AGRICULTURAL RESEARCH STATIONS DURING THE YEAR.

Readers desiring fuller information on any of the subjects mentioned should write to the Director of the Station at which the investigation is being carried out.

ANIMAL BREEDING RESEARCH DEPARTMENT

UNIVERSITY OF EDINBURGH, WEST MAINS ROAD.

THE constitution of this Department has undergone a change. Following upon an agreement between the Department of Agriculture for Scotland, the University of Edinburgh, and the International Education Board of America (the latter making a gift of £30,000), the Animal Breeding Research Department was incorporated into the University, and the Director, Dr Crew, was appointed first occupant of the Buchanan Chair of Animal Genetics, the Chair being named after Lord Woolavington, who had generously contributed £10,000 towards its endowment. In place of the old Joint-Committee a new one has been appointed, whose function it is to advise the University Court on matters pertaining to the Department. The Highland and Agricultural Society nominates one member of this Committee, and is at present represented by the Hon. T. G. P. Corbett.

A grant for five years from the Empire Marketing Board has been made to the Department in aid of work relating to the biology of the fleece of the sheep. A sheep-house has been built, and in charge of this work Mr William Miller, M.R.C.V.S., late of the Royal (Dick) Veterinary College, has been appointed.

Much of the work of the Department is not of immediate interest to the agricultural practitioner. An account of this is therefore not included in this report.

The work in Animal Husbandry deals with the application of knowledge gained to the practical problems of the farmer. In the past activities have been necessarily restricted to

Herd Book and Stud Book analysis, with, rarely, the practical application of breeding principles on a farm whose owner is sufficiently interested to allow experimentation to be carried out. Now, however, things are more promising.

PIGS.

By the kindness of the Board of Agriculture for Scotland a well-equipped piggery has been built, and has been in use for some months. The new piggery serves the double purpose of accommodating pigs used for experimental purposes and also those which are entered under the Pig Testing Scheme. This scheme is modelled on others already existing in Denmark and the United States of America.

Broadly speaking, the working principles are as follows: To be eligible for test a sow possessing not less than twelve teats must produce and rear to sixty days of age at least eight piglings, and a gilt at least seven piglings. At sixty days of age no pigling will be counted as one unless it weighs at least 26 lb. At this age four representative piglings from the litter are sent to the testing station. Each pen is constructed to accommodate four pigs. All pigs on test are kept under standardised conditions, are fed on uniform rations, which are varied in quantity and composition according to the average live-weight of pigs in a pen, and are weighed at intervals of a fortnight. As soon as possible after a pen of pigs average about 200 lb. live-weight they are sent to a bacon factory, when a careful study of the carcases is made, and such measurements taken as percentage dead-weight, percentage curable bacon, and all-round suitability of the cured bacon for the bacon trade. About ten litter groups have been finished, and the results are of the highest interest as showing the type of pig which it will be most economical for the breeder to raise.

CATTLE AND HORSES.

The Herd and Stud Book studies continue, particularly in respect of Clydesdale horses, Shorthorn, Ayrshire, and Jersey cattle. The Department are much indebted to the Highland and Agricultural Society for the loan of Herd Books, &c. These investigations are correlated with other records, such as the prize lists at leading shows, milk records, and returns of stallions refused licence by the Government. The last two are relatively exact measures, the first is not. For instance, in the Department, studies of the Jersey breed in relation to milk records have brought to light some interesting possibilities in regard to the inheritance of yield and quality of milk. These are being confirmed by the work at present in progress in Ayrshire cattle, and it is hoped that opportunity will soon be given to test out the theoretical conclusions in a practical manner.

Studies of the Clydesdale breed in relation to defective horses have confirmed the findings of Royal Commissions and justified the existence of the Horse Breeding Acts. Nothing fundamentally new has been discovered in this work, but the discovery of fundamentals was not a chief aim of the investigation. The staff of this Department is now in a position to give advice to Clydesdale breeders upon the possibility of certain matings throwing defective animals. It can be said, for instance, whether the possibility of an unborn foal becoming a roarer is one chance in five or one in a hundred.

Sterility.—Investigations are being made into the question of inherited sterility, as well as into methods by which sterility can be overcome, especially those forms which are not inherited.

SHEEP.

The investigations into problems of the sheep, conducted by Mr Miller, are partly of an applied and partly of a more purely scientific nature. They may be summarised:—

(*a*) *Voronoff Operation.*—A commencement has been made with the experimental examination of the claims of Voronoff, that by his method of operative interference an increase in body weight and fleece weight can be produced, and that reactivation of the aged male is possible. Several sheep have been used, but it is not proposed to extend this work further until operative and histological accommodation is completed.

(*b*) *Thyroxin Experiments.*—Preliminary observations are being made with a view to the use of thyroxin as an influencing agent in the growth of the fleece, and to determine the rôle of the thyroid gland in the cutaneous system of the sheep. Horned breeds are being used.

(*c*) *Weight per Unit Area.*—In conjunction with Mr J. A. Fraser Roberts, various methods of estimating weight of wool per unit area of the skin surface of the sheep are being examined. It is obviously essential that before accurate results of experimental or environmental interference can be measured, some rapid and accurate method of determining weight per unit area other than fleece-weighing in mass must be devised. This will engage attention almost exclusively until a satisfactory method is evolved. The whole of the future work will have to be based partly on some more accurate method than those already employed, and partly upon the estimation of average weight per centimetre length.

(*d*) A preliminary examination of the composition of the fleece of the Scottish Mountain Blackface breed is being undertaken, with a view to determining the rôle heredity plays in the production of percentages of kemp in the fleece.

(*e*) *Field Work.*—A number of sheep breeders have expressed themselves willing to carry out experimental work on lines to be suggested, and to submit numbers of sheep to Departmental control. In time it is hoped that this aspect of the work will increase.

The work on Goats continues, and considerable investigations are in progress in Rabbits, both as regards pelts and wool. The rabbit industry has since the war become one of considerable importance, and steps are being taken to place scientific knowledge at the service of breeders. The work in Poultry relates principally to basic facts, but an interesting investigation of over 10,000 eggs which failed to hatch in the incubators of several of the leading breeders has thrown some useful light on the causes of ' dead in shell,' and indicates how breeders may, to a great extent, minimise their loss in this direction.

ANIMAL DISEASES RESEARCH ASSOCIATION OF SCOTLAND.

MOREDUN INSTITUTE, GILMERTON, EDINBURGH.

INSTITUTE.

The Association's Institute is exceedingly well laid out and designed. The main building is well equipped for the various kinds of microscopical and other work which has to be carried out in the course of investigating diseases, and it is complete with sterilising-rooms, cold-store, &c. In addition, there is a good library. In separate buildings are the accommodation for the small animals and the stables, the post-mortem room being attached to the latter. There are about twenty acres of first-class grazing land divided into seven paddocks.

As a great deal of the work carried out by the Association is in connection with seasonal diseases, and as in most instances the stock affected is at considerable distances from Edinburgh, it is usually convenient to set up a small field-station at the site of operations. For this purpose Mr Falconer L. Wallace of Candacraig and Balcairn, the Association's President, presented a fully equipped large size motor field laboratory, which is a mobile unit ready for work in any part of the country.

RESEARCH.

Braxy.

Braxy preventive vaccine has been prepared for some years. In response to a steadily increasing demand from the owners of affected stock, a larger quantity is being made each year. In 1926 37,000 hoggs, in 1927 48,000, and in 1928 54,000 were inoculated by their owners throughout Scotland and Ireland.

'Lamb Dysentery.'

For the last two or three years the bulk of the Association's activities has been devoted to work on 'Lamb Dysentery,' and exceedingly valuable results have been obtained. The nature of the disease is now well understood, and a serum has been prepared which confers protection on lambs against the risks of natural infection. (See pp. 47-70).

'Grass Sickness' in Horses.

'Grass Sickness' is a problem to which a great deal of time has been devoted by the Association. The inquiry is being undertaken on the widest possible basis in the hope that, by enlisting the collaboration of specialists in many branches of science, an earlier result will be obtained than would be possible by an inquiry along narrow lines.

Bovine Contagious Abortion.

A scheme has been submitted to the Department of Agriculture for Scotland with a view to obtaining a grant for an investigation which it is estimated will involve five years' work. The problem is exceedingly urgent, and the Association is fully alive to the need for carrying out intensive research on this serious disease with a view to lessening the losses from it.

The connection of sterility with contagious abortion is fully borne in mind, and it is hoped that it may be given a place on the research programme in the near future.

'Scrapie' in Sheep.

Experimental work on this disease is in progress.

'Louping Ill' in Sheep.

Since it has been possible to discontinue the heavy field-work on 'Lamb Dysentery,' active investigation into 'Louping Ill' can now be proceeded with. It has fortunately been possible to enlist the aid of many scientists in different parts of the country, and in consequence very much more intensive work is being carried out than would be possible if it were limited to the Association's staff.

Miscellaneous.

A considerable amount of miscellaneous work such as diagnosis, the preparation of vaccines, general advice, &c., is carried out regularly.

THE ROWETT RESEARCH INSTITUTE.

BUCKSBURN, ABERDEEN.

Recent developments in connection with the Institute are the establishment of the Duthie Experimental Stock Farm and of the Bureau in Animal Nutrition. The Stock Farm, comprising departments for pigs, poultry, sheep, dairy cattle, and beef cattle, is being organised for the carrying out of large-scale feeding trials, based upon the results of fundamental research. It is hoped that it will be completed in 1930. The Bureau in Animal Nutrition is being set up to act as a clearing-house for information on subjects relating to the nutrition of animals, and to correlate the research work which is being carried out in different parts of the Empire. Similar Bureaus for Animal Diseases and Genetics are being established in London and Edinburgh.

The work of the Institute during 1928 has been largely a continuation of that reported upon last year. The following short review gives an indication of the nature of the work under investigation, and the lines along which it is being developed.

MINERAL METABOLISM.

Work on general mineral metabolism has been extended to include a study of the function of, and the animal requirements for, elements such as manganese, aluminium, copper,

&c., which are present only in small amounts in the animal body. Attention is at present being concentrated chiefly on manganese, and a survey is being carried out of the manganese content of plants and animal tissues. Feeding experiments with pigs are being undertaken to test the effect on growth and fertility of adding varying amounts of manganese to the ration.

PASTURES.

The main results of this investigation were outlined in the last report, and an account of the work is given elsewhere in this volume (pp. 99-114). Briefly, the investigation has shown that much of the natural hill pasture in this country is markedly deficient in both protein and mineral matter, and that the highest mortalities amongst sheep are to be found in flocks grazing the pastures which are poorest in these substances. Based on these results, large-scale feeding experiments are being carried out on poor grazings in the west of Scotland to determine the effect of feeding directly to the sheep the substances which are deficient in the pasture.

It is of interest to note that work of a similar nature is being carried out in many of our Dominions and Colonies where similar deficiencies in the pastures have been found. Under grants from the Empire Marketing Board, investigations are being carried out in Australia and New Zealand.

In parts of Kenya Colony the pastures are deficient in both proteins and mineral salts, and in experiments with sheep and calves interesting results have been obtained from the feeding of supplementary protein and mineral matter. At Nakuru, in Kenya Colony, a disease known as ‘Nakuruitis’ is very prevalent amongst cattle. The symptoms are almost identical with those of ‘Bush Sickness’ in New Zealand, which was successfully treated by the administration of iron salts. An investigation into ‘Nakuruitis,’ directed from the Institute, has shown that this disease also yields to similar treatment with iron salts.

INTENSIVE GRAZING.

Plot investigations have been carried out to determine the effect on yield of pasture of close cropping as against cutting for hay and aftermath. Results would indicate that frequent cutting materially decreases the season's yield of pasture, but that such cutting maintains a pasture of more uniform composition, which is better balanced with regard to constructive material for growth and production than the more mature plant at the hay stage.

In these plot experiments several plots were treated with a dressing of nitrogenous and mineral fertilisers. This treatment increases the bulk and affects the chemical composition of the pasture, but the relationship between the cost of the intensive treatment and the resulting increased value of the pasture has still to be determined.

Tests on the effect of successive applications of fertilisers have been carried out with milk cows on rotational grazing to determine the increased value of the pastures in terms of milk. Results to date would indicate that so far as treatment with sulphate of ammonia is concerned when superimposed on the mineral fertilisers, the increased value of the pasture is just about balanced by the extra cost of the sulphate of ammonia. There are indications that the profits from the use of sulphate of ammonia will vary with the nature of the soil and the pasture to which it is applied.

IODINE.

Work on iodine metabolism has been continued. A survey is at present proceeding into the iodine content of foodstuffs from goitre and non-goitre areas, in an attempt to establish whether a relationship exists between deficiency of iodine in the food and the incidence of goitre. Feeding experiments with pigs, poultry, sheep, and calves are at present being carried out to determine the effect of adding extra iodine to the ration. The present state of our knowledge with regard to iodine and its use in nutrition has been summarised in a monograph issued from the Institute and published by the Medical Research Council.

DIET AND DISEASE.

In the course of the practical work at the Institute extending over a considerable number of years, it has been repeatedly noted that mortality was highest in the case of animals fed on a diet deficient or ill-balanced with regard to various food constituents, especially those required in comparatively small amounts. These observations suggest that deficiencies in the diet, in addition to producing diseases of malnutrition, predispose to other diseases. Several experiments with small animals have been carried out during the past year which appear to confirm these views. This work is being extended, as it appears to be of great economic importance.

SCHOOL CHILDREN INVESTIGATION.

The experiments on school children to test the value of milk on growth, referred to in last year's report, have been repeated during the present year by the Scottish Board of Health. The results of this second test confirm those of the previous one as regards the value of milk in stimulating growth. It was again found that separated milk was almost as valuable for this purpose as whole milk. Comparing groups of children receiving milk and groups receiving no milk, it was found that there was a difference of 23 per cent in increase in height and of 45 per cent in weight in favour of the milk groups. The value of separated milk as a foodstuff would thus appear to be under-estimated, and these results are now being used in propaganda for the increased consumption of milk in this country. It is estimated that in Scotland alone 1⅓ million gallons of separated milk are surplus to the present-day consumption. If the nutritive value of separated milk were more fully appreciated, a better price would no doubt be obtained for it as a human foodstuff than is meantime being obtained as a food for pigs.

OTHER WORK.

Work on the effect of dietary constituents on the movements of the intestine has been continued, and results already obtained indicate that deficiency or excess of the substances required in the food upsets the normal functions of the intestine, and may therefore be a predisposing cause to disease.

Differences in the chemical composition of the tissues of the fowl during growth, laying, and moulting are being studied, and it is hoped that this work will throw light on the requirements of the heavy-laying fowl for certain food substances.

Joint work with Cambridge, Harper Adams, and Northern Ireland has been directed to the finding of a substitute for fish meal in pig feeding. At the present day fish meal is an expensive foodstuff, and experimental work has shown that as good results can be obtained by the use of a vegetable protein balanced up with a suitable mineral mixture.

THE SCOTTISH PLANT-BREEDING STATION.

CRAIGS HOUSE, CORSTORPHINE, MIDLOTHIAN.

In the report in the last volume of the 'Transactions' reference was made to the work with oats. On this occasion it is proposed to refer to the progress that is being made with the breeding of herbage plants.

The plants on which research work is being conducted are perennial ryegrass, cocksfoot, timothy, and plantain. The chief purpose of the investigations is to obtain information that will lead to the construction of a sound system of breeding and comparing pasture types of the above-mentioned species. The investigations include studies of self-sterility in grasses, of the genotypic composition of wild populations, and of the effects of different environmental conditions on various strains and species of grasses. A necessary preliminary to this work was the collecting of growing plants from widely different areas in Scotland and elsewhere, in addition to obtaining seed from commercial sources. In collecting growing plants the botanical surveys were confined almost entirely to old and heavily grazed pastures which probably had never been under the plough, and in which there was little likelihood of the cultivated forms of the respective grasses having been introduced. In addition to procuring seed from home sources some was obtained for comparison from foreign Plant-Breeding Stations and seed firms. For several years a large number of seedling plants have been grown at the Plant-Breeding Station, and the individual plants compared. It has been found that many different forms of perennial ryegrass and cocksfoot can be distinguished and separated. Some significance can be attached to the fact that the plants obtained from old pastures where re-seeding had not occurred have almost always consisted of leafy late-flowering forms. Seedlings raised from seed of commercial origin generally consisted of varying proportions of different types of plants, but the majority of them were of the early-flowering 'stemmy' type which bears comparatively few leaves. As the plants obtained from old pastures were generally leafy and late flowering, it is believed that plants possessing these characteristics are better grazing types than the 'stemmy' and early-flowering ones, which, while suited for 'haying,' are not so well adapted for grazing. Further, there is reason to believe that the best pasture plants are those that develop tillers from the stem joints below or at the ground level.

In the course of comparing the selected plants, it became evident that there were certain problems which would have to be investigated before appropriate breeding methods could be devised. The most important of these problems were concerned with pollination and sterility in the three grasses already referred to. As a result of this necessary but subsidiary research, it was found that even under natural conditions cross-pollination was necessary in plants of perennial ryegrass, cocksfoot, and timothy if a normal quantity of seed was to be produced. In many instances if cross-pollination was prevented, practically no seed was formed. In general, plants which were self-sterile when artificially isolated were also self-sterile when grown under ordinary conditions of culture, provided pollen from other cross-fertile plants was excluded. Contamination by extraneous pollen could be avoided if the plants flowered when there were no other plants of the same species flowering sufficiently near at hand to permit of their pollen being transferred by the wind to the plants under experiment. When the spikes or flower heads of different self-sterile but inter-fertile plants were enclosed together in the same parchment bag and arrangements made frequently to disperse the pollen within the bag, the amount of seed which set equalled that produced under natural cross-pollination. Several plants were subjected to a set of different environmental conditions, but in no case was there any increase of fertility as a result of the different treatments. From the breeder's point of view, the presence of self-sterility in a high degree forms a hindrance to studying the transmission of the hereditary characters of the different plant types, and further, it retards the production of stocks of varieties which breed relatively true to type through the seed.

A method has been devised (and it appears that it will be successful) whereby the difficulty of obtaining 'pure' seed, despite the occurrence of self-sterility, will be circumvented. The method adopted, subsequent to the initial breeding work under glass, is to pair inter-fertile plants which are similar in their botanical characters, and which when crossed produce a progeny the members of which are more or less alike in their essential characteristics. The plants which are to be paired are first of all divided and propagated vegetatively until there are about one hundred plants from each of the two original ones. The individual plants of the two inter-fertile varieties are then interplanted and seeded where a certain measure of isolation from the plants of a like species exists. Sufficient seed can be obtained by this method to provide seed for a large multiplication plot on a field scale. It is in the initial stages of multiplication that there is a great risk of a large proportion of the selected plants receiving pollen from other cross-fertile plants of undesirable types, and thus greatly reducing the purity of the strain.

As a result of selecting and comparing the different forms of perennial ryegrass, cocksfoot, and timothy, which have been collected or raised from seed, several pasture forms of these grasses are now being multiplied. Small-plot trials at the Plant-Breeding Station have indicated that larger scale field trials should be made as soon as the necessary quantity of seed is available, and arrangements for this are now being made.

It is apparent that the leafy late-flowering forms of perennial ryegrass and cocksfoot will not be such prolific seed producers as the 'haying' forms, but it is not anticipated that the yield of seed will be so meagre as to render the cost of the seed prohibitive in ordinary practice.

Among the components of a plant population there is inter-competition, not only between plants of different species but between forms of the same species, and some plants appear to be much better able to survive than others. The survival of a plant in a pasture depends largely on the environmental conditions to which it is subjected. Some of these conditions may promote its development, while others will exert a suppressing influence and perhaps eliminate the plant entirely. The eliminating agents are not confined to soil and climatic conditions, but also include the activities of animals and plants. It will be obvious, therefore, that it is important to investigate the relationship between the plants existing in a grass population and the particular conditions under which they are growing. This line of work is being actively pursued.

The relative hardiness or the persistence of a plant in a pasture is an important matter, and an attempt is being made to compare the relative hardiness of different grasses. Plants which were collected from exposed situations have been grown at the Plant-Breeding Station under environmental conditions which were as nearly as possible alike for all the plants. Plants from other less exposed habitats were used for comparison. It was found that the majority of the hardy types were very liable to 'winter-burn'—that is, the part of the plant above ground becomes withered, and the plant as a whole remains in a dormant condition during the winter. Not much is known regarding this condition, but it is possibly a characteristic of hardy types which enables them better to withstand adverse climatic conditions.

With a view to obtaining a strain of timothy hardier than the cultivated strain, Common timothy has been crossed with Alpine timothy. Alpine timothy is a much lower growing form of plant than the cultivated form. The first generation plants of the hybrid were more or less intermediate in form between the two parent types, and they showed decided promise as pasture plants, but the pollen for all practical purposes was not functional, also the ovules were almost all sterile, thus preventing the production of a second generation of plants. An indication of the high degree of sterility met with in this hybrid may be obtained when it is stated that from a possible number of three or four hundred thousand unprotected florets, the small amount of seed obtained produced only seven seedlings. This cross has been repeated several times to discover whether any plant of a higher degree of fertility might be obtained, but the continual occurrence of sterility has so far prevented any progress being made.

Preliminary investigations are being made to discover whether sea-plantain (*Plantago maritima*) may have any value as a pasture plant. Although this plant is named 'sea-plantain,' it grows inland at elevations of 450 feet to over 2500 feet. There is reason to believe that the leaves of rib-grass (*P. lanceolata*)—another species of plantain—have a beneficial effect on animals which are affected with 'scouring.' The sea-plantain has glabrous leaves which are much narrower and more succulent than the leaves of rib-grass, and it therefore seems to be a more suitable plant for grazing. Whether it contains any active principle that will tend to counteract the effects of excess of wild white clover in pastures when this causes 'scouring' of the grazing animals is unknown. With a view to getting information on this point a considerable quantity of seed of sea-plantain has been collected at the Plant-Breeding Station, and is being sown along with grass seeds and wild white clover to test the possibilities of sea-plantain as a pasture plant.

WEST OF SCOTLAND AGRICULTURAL COLLEGE.

(*a*) MILK PRODUCTION DEPARTMENT.

Investigation into problems connected with the feeding and management of dairy cattle occupy the whole time of this Department. Some of the problems being investigated are relatively simple, while others require several years of work before satisfactory results can be obtained. A brief review will be given here of the results of a few of the trials which have a direct practical bearing

Roots or no Roots ?—A report on a trial with roots was given last year. Now the results of the first year of a long-time trial are also available. In this eight heifers in their first lactation were divided into two groups. One group was fed

40 lb. of swedes and 16 lb. hay during the winter of 1927-28, while the other had hay only. Concentrates were fed according to production. The heifers receiving roots produced on the average during their first lactation 809 gallons of milk and 295 lb. of butter-fat, as compared with 721 gallons of milk and 275 lb. of butter-fat for the group receiving no roots. This is 88 gallons of milk and 20 lb. of butter-fat per head in favour of the root group.

The Allowance of Roots.—Rations containing 40 lb. and 60 lb. of swedes have been compared, and it was found that the additional 20 lb. of swedes saved 2 lb. of a good concentrate mixture. This means that at the present time, with concentrates costing around £10 per ton, swedes are worth £1 per ton for feeding to dairy cows.

A Comparison of Succulent Feeds.—The results of a large number of trials show that one ton of swedes can be replaced by 11¾ cwt. of silage or 3¾ cwt. of dried beet pulp. This means that where swedes are worth 15s. per ton, silage, as fed out of the silo, must not cost over 26s. per ton if it is to be as economical as the swedes, while with swedes at £1 the silage is worth 35s. In the same way, when swedes are 15s., dried beet pulp is worth £4, and with swedes at £1 the pulp is worth £5, 7s. per ton.

Turning Cows to Pasture.—It is a very common belief that when cows are turned to pasture in spring the yield of milk rises very considerably while the percentage of butter-fat in the milk falls rapidly. Undoubtedly these results are found in many cases, but they need not always occur, as the condition and previous feeding of the cow control to a very large extent the changes in milk yield which occur on turning to pasture.

It has been shown that where the cows have been well fed during winter and spring, and are in good condition on going to pasture, there will be an increase in the milk yield, though not so marked as is usually supposed, while the fat content will go up rather than down. It is when the cows are not in high condition that the large increase in yield, with the accompanying fall in fat content, occurs on turning to pasture.

Milking Machines.—It has been found that a good milk flow can be maintained with either hand or machine milking, provided the work is properly carried out. Where labour is cheap, hand milking will be the most economical, but where labour is high, then the machine will be cheaper for milking.

(*b*) MILK UTILISATION DEPARTMENT.

(*a*) Investigations relating to certain well-defined defects in milk, cream, and manufactured dairy products which have been in progress for some years past were continued and amplified during the current year. While it becomes increasingly clear that the main defects which occur in dairy manufactures are associated with the bacteriological and biochemical condition of the primary milk, yet during the past three years we have been able to trace the cause of specific faults to some of the materials used in manufactures—*e.g.*, rennet, annatto, starter. In some cases the feeding and the water supply have also been blameworthy. Two instances which occurred during the past experimental season will serve to illustrate these points.

(1) The researches of 1926 and 1927 had shown that black discoloration in hard-pressed cheese was caused by lead compounds, and that the red lead paint used as a protective coating for the jacket of the cheese vat, or for the water heater in the dairy, was a common source of infection. The local agricultural instructor (Mr John Gillies) had reported a somewhat serious form of black discoloration to have occurred in two cheese-making farms in Dumfriesshire. Micro-chemical examination of the discoloured cheese established lead as the causal factor, but an examination of the cheese vats failed to reveal any perforation by which water carrying particles of lead from the jacket could reach the cheese milk or the cheese curd. The rennet and the water supply were blameless, and the solder of the vat was likewise unoffending, but the annatto used on these farms was found to be heavily charged with lead. This was established not only by chemical analyses of the annatto, but also by actual experiment. Two cheeses were simultaneously made from the same original milk; in one the suspected annatto was employed, while in the other a standard commercial brand of proved purity was used. The suspected annatto produced a cheese showing the well-defined blackening, while the control cheese remained perfect in colour. There seems little doubt that the annatto seed from which this faulty colour was prepared had been sophisticated with red lead in order to improve its apparent colour, and thereby increase the probability of its sale.

(2) A foul-smelling odour, which ruined a large number of commercial cheeses, appeared among the Scots cheddars and Dunlops which were made in the early part of 1928. The loss caused by this putrefactive flavour amounted to some thousands of pounds. Investigation showed that the defect was caused by a putrefactive anærobic bacillus which is allied to *B. putrificus* (Bienstock), that the offending organism was not conveyed by the rennet, by the colouring matter, or by the salt. The off flavour, caused by the organism, does not develop until the cheese is four to five months old, when the reaction of the cheese has been changed by the bacteria

themselves. Cheesemakers can prevent a recurrence of this serious flavour defect by paying special attention to the cleanliness of the primary milk, and to the origin and purity of the 'starter.'

(*b*) From the results of a number of trials conducted under strictly comparable conditions (utilising for experimental purposes the milk of the station herd), it would appear that hand-drawn milk is superior to machine-drawn milk for cheesemaking purposes. This work seems to indicate that the difference in the quality of the cheese is to be attributed to the special bacterial types incident to the method of milking, rather than to the absolute number of organisms present in the cheese milk.

(*c*) Pasteurising milk to relatively high temperatures introduces certain difficulties into the cheese-making process, prolonging the rennet coagulation, producing a somewhat weaker curd, and resulting in a less satisfactory texture in the ripe cheese. Attempts were made to minimise these defects by spraying the pasteurised cheese milk (150° F. for thirty minutes) with hydrochloric acid, after the manner of Sammis and Bruhn. The weakness apparent in the newly pasteurised milk was satisfactorily overcome by the acid treatment, but the cured cheeses were not as good as the controls, either from the point of view of flavour or texture. The sharp taste of the added mineral acid could invariably be detected in the mature cheeses.

(*d*) A weak coagulation, and a consequent lack of body in the cheese curd, are primary defects which the average cheesemaker not infrequently experiences, and which he has difficulty in combating. To milk displaying such obvious weakness, certain salts were added in an attempt to improve the character of the curd. It was found that calcium chloride improved the coagulating properties, but not the texture, of the mature cheese. Potassium phosphate was superior to calcium citrate in so far as the matting properties of the curd were concerned, but neither salt resulted in any improvement in the body or texture of the ripe cheese.

(*e*) A colour defect known as 'rusty spot,' which has appeared with increasing frequency in white cheeses made in South Scotland and North England, and which greatly lowers their market value, was found to be caused by an organism akin to *B. rudensis*. The causal organism was isolated from an affected cheese, and the defect very exactly reproduced by inoculating the cheese milk prior to renneting with a viable culture of the bacillus in peptone water. It was shown also that old cultures of the organism seldom induced 'rustiness,' and that infection of the cheese milk takes place by a definite route.

(*f*) An extra fine quality of cheese was produced by pasteurising cheese milk to 143° F. for thirty minutes, and employing as a starter a vigorous strain (isolated in our laboratory) of *B. acidophilus.*

NORTH OF SCOTLAND COLLEGE OF AGRICULTURE AND UNIVERSITY OF ABERDEEN.

SOILS AND DRAINAGE RESEARCH DEPARTMENT.

The Soils and Drainage Department of the North of Scotland College of Agriculture deals specially with (1) the origin, classification, and composition of the soils of the north of Scotland; and (2) the composition of soil drainage and the losses which the soil suffers through drainage. It also deals with questions of manuring and soil fertility, and, in addition to the research work of the department, many field experiments and demonstrations on the use of fertilisers and on questions of crop growing are carried out on the experimental farm of the college at Craibstone.

The department suffered a very heavy loss during 1928 through the death of Mr Newlands, who, having obtained a travelling fellowship, went to visit a number of Soil Research Institutions on the Continent. During his journey he went as far north as Finland, where he was taken ill. After a short rest he returned to Germany through Sweden, but had to go into hospital in Berlin, where he died on 23rd July. His soil work was of the greatest value, as he was able to bring to it extensive knowledge both in geology and in chemistry. He struck out a special line for himself by studying the mineralogical composition of Scottish soils, and published work of great interest on this subject. He had reached, after several years' study, the period when he was able to produce results of great value, and had recently published several papers. He had much unfinished work in hand, some of which would soon have been ready for publication. Owing to his loss the work of the department has had to be greatly curtailed, as no arrangements have yet been made for replacing him.

A very large number of Scottish soils are acid in reaction. During the last few years, since the cultivation of sugar beet has attracted attention in Scotland, Mr Newlands had been collecting data concerning the growth of sugar beet on acid soils. The results of these investigations were published in two short papers which appeared after his death, one in the 'Journal of Agricultural Science' entitled "Certain Acid Soils and Growth of Sugar Beet," and the other published in the 'Scottish Journal of Agriculture' entitled

"Certain Soil Properties in Relation to Sugar Beet Growing." These investigations indicate that the failure of sugar beet on Scottish soils is, as a rule, closely related to the acidity of the soil, and to lime deficiency in the soil. The practical lesson to be learnt from them is that adequate liming is necessary if sugar beet is to be successfully grown in this country.

Four papers on the work of the department which were read before the First International Congress of Soil Science at Washington, D.C., were published during the year in the 'Proceedings of the Congress.' Two of these related to parts of the work to which Mr Newlands specially devoted himself. One of them by Professor Hendrick and Mr Newlands, entitled "The Mineral Composition of the Soil as a Factor in Soil Classification," gave a summary of the work which had been carried out during the preceding few years on the mineral composition of Scottish soils, and brings out the contrast in mineral composition between Scottish soils—and especially those of the north and west of Scotland—and the well-known soils of the south-east of England, which are so commonly treated in our text-books as typical. The Scottish soils contain a rich reserve of lime, magnesia, potash, and soda in unweathered and slightly weathered silicates; while the English soils have no such reserves, as they consist of the residuals of prolonged and practically complete processes of weathering. Following on this is a paper dealing with the soil types of the north-east of Scotland and their origin, called "Scottish Soil Types, with special reference to north-east Scotland." A third paper by Professor Hendrick, "Some Notes on the Conditions of Nitrification," shows that nitrification can take place freely in soils which are quite acid. In most text-books it is stated that nitrification does not take place in acid soils. A further paper on "The Substances removed by the Drainage from a Scottish Soil," is by Professor Hendrick and Mr H. D. Welsh, and gives a summary of the results obtained with the Craibstone drain gauges over a period of eight years, 1919 to 1926 inclusive.

During the year under review, while little progress was made with the investigations into the origin and classification of soils and with the mineralogical analysis of soils owing to Mr Newlands' death, the work of the drain gauges continued to be carried on as usual. The drain gauges at Craibstone have already been described in the 'Transactions,' 1921, vol. xxxiii., pp. 56-79, and some further account of the results obtained by their use will, it is hoped, be given in the 'Transactions' in the near future.

MILK RECORDS.

TWENTY-SIXTH YEAR—RECORDS OF 30,293 COWS.

By WILLIAM STEVENSON, B.Sc., N.D.A., N.D.D., Superintendent,
The Scottish Milk Records Association.

SYSTEMATIC milk recording in Scotland was continued in 1928 under the direction of the Scottish Milk Records Association on the same lines as in 1927 and previous years. The scheme of private or unofficial milk records for unregistered herds inaugurated in 1924 was also continued during this year.

The Association in 1928 consisted of the following members :

Name and Address.	Body Represented.
Mr John Robson, Jun., Lynegar, Watten	Caithness Milk Recording Society.
Mr Thos. Barr, Hobsland, Monkton	Central and South Ayrshire Milk Recording Society (5 Circuits).
Mr William D. M'Cubbin, Lochlands, Maybole	
Mr William D. Wardrop, Rigg, Auchinleck	
Mr Andrew Wilson, Finlayston, Ochiltree	
Mr George Templeton, Carnell Farm, Hurlford	Central Ayrshire No. 2 Milk Recording Society.
Mr Alex. Y. Allan, Aitkenbar, Dumbarton	Dumbartonshire Milk Recording Society.
Mr James Armstrong, Castlehill, Lockerbie	Dumfriesshire Milk Recording Society (3 Circuits).
Mr Robt. Millar, Shawsholm, Closeburn	
Mr Mungo Sloan, Hunterhouse, Lochmaben	
Mr John Speir, Newton Farm, Hallside	East Kilbride and District Milk Recording Society (2 Circuits).
Mr Alex. Paterson, Cathburn, Newmains	
Mr Robert M. Broadfoot, Whitekirk Mains, Prestonkirk	East Lothian Milk Recording Society.
Mr Robt. M. Reid, The Glen Farm, Falkirk	East Stirlingshire Milk Recording Society.
Hon. G. Corbett, Rowallan, Kilmarnock	Fenwick (High) Milk Recording Society.
Mr William M'Adam, Athronhall, Milnathort	Fife Milk Recording Society (2 Circuits).
Mr James W. Miller, Lochhead, East Wemyss	
Mr D. F. Mackenzie, Parks of Inches, Inverness	Highland Milk Recording Society.
Mr D. M'Millan, Eorrabus, Bridgend	Islay Milk Recording Society.

Name and Address.	Body Represented.
Mr Andrew Craig, Ryesholm, Dalry	"John Speir" Milk Recording Society.
Mr Robert Young, Drum, Kilkenzie	Kintyre Milk Recording Society.
Mr John T. Kirkwood, B.Sc., N.D.A., Scorrieholm, Lesmahagow	Lesmahagow Milk Recording Society.
Mr Andrew C. M'Candlish, Ph.D., B.Sc., Claunch, Sorbie	Lower Wigtownshire Milk Recording Society (2 Circuits).
Mr Alexander M. Owen, Culnoag, Sorbie	
Mr Jas. J. Howie, Eglinton Mains, Irvine	Montgomerie Milk Recording Society.
Mr John A. Carlyle, B.Sc., Prudential Buildings, Arbroath	North of Scotland Milk Recording Society (2 Circuits).
Mr George Buchanan, Hunterhill, Paisley	Renfrew and Bute Milk Recording Society (2 Circuits).
Mr Robert Howie, Flatterton, Greenock	
Mr George Lambie, Langton, Newton Mearns	Renfrewshire (Upper Ward) Milk Recording Society.
Mr Andrew Cochran, High Ardwell, Kirkcolm	Rhins of Galloway Milk Recording Society (5 Circuits).
Mr Alex. M. M'Caig, Challoch, Stranraer	
Mr John Forster, Mains of Larg, New Luce	
Mr James Wither, Awhirk, Stoneykirk	
Mr John Sanderson, Linthill, Lilliesleaf	Roxburgh and District Milk Recording Society.
Mrs Eadie, Hazelbank, Dunlop	Stewarton and Dunlop Milk Recording Society.
Mr H. G. Baird, Kirkchrist, Kirkcudbright	Stewartry of Kirkcudbright Milk Recording Society (5 Circuits).
Mr H. W. B. Crawford, Forneth, Castle-Douglas	
Major C. R. Dudgeon, Cargen Holm, Dumfries	
Mr William P. Gilmour, Balmangan, Borgue	
Mr J. B. Douglas, Barstibly, Castle-Douglas	
Mr Eben More, Dalmacoulter, Airdrie	West Lothian Milk Recording Society.
Mrs Houison-Craufurd, Wester Birt, Setbury, Gloucestershire	The Ayrshire Cattle Herd-Book Society of Great Britain and Ireland.
Mr James Howie, Hillhouse, Kilmarnock	
Mr Jacob S. Murray, Dalgig, New Cumnock	
Mr A. W. Montgomerie, Lessnessock, Ochiltree	
Mr Matthew Bowie, Balmuildy, Maryhill, Glasgow	The British Friesian Cattle Society.
Mr George Pirie, Riccartsbar, Paisley	
Mr T. J. Anderson, Cairnfield, Lerwick	The Shetland Cattle Herd-Book Society.
Mr Matthew White, M.R.C.V.S., Sandayre Villa, Lerwick	
Mr Alex. Murdoch, East Hallside, Hallside	The Highland and Agricultural Society of Scotland.
Mr W. P. Gilmour, Balmangan, Kirkcudbright	
Sir Hugh Shaw Stewart, Bart., C.B., of Ardgowan, Inverkip	

Name and Address.	Body Represented.
Mr T. C. Lindsay, Aitkenbrae, Monkton	The West of Scotland Agricultural College.
Mr J. F. M'Gill, of M'Gill & Smith, Ltd., Ayr	
Principal W. G. R. Paterson, 6 Blythswood Square, Glasgow	
Mr Harry Armour, 16 Murrayfield Road, Edinburgh	The Edinburgh and East of Scotland College of Agriculture.
Mr Alexander Lauder, D.Sc., 13 George Square, Edinburgh	
Principal E. Shearer, 13 George Square, Edinburgh	
Mr G. G. Esslemont, M.B.E., B.Sc., 41½ Union Street, Aberdeen	The North of Scotland College of Agriculture.
Professor J. Hendrick, Marischal College, Aberdeen	
Mr J. F. Tocher, D.Sc., 41½ Union Street, Aberdeen	
Mr Robert Dickie, Knockenjig, Sanquhar	Co-opted Members.
Col. W. T. R. Houldsworth, of Kirkbride, Maybole	
Mr James Dunlop, Midland, Prestwick	
Mr George Hobson, 4 Southampton Row, London, W.C. 1	
Mr Robert Laird, Lawthorn, Irvine	

Chairman—Mr Alex. Y. Allan.

The following were the principal members of the staff :—

Secretary and Treasurer—Mr John Howie.

Superintendent—Mr William Stevenson, B.Sc., N.D.A., N.D.D.

Assistant Superintendent—Mr Percy H. Hart.

SCHEME OF OFFICIAL MILK RECORDS.

ADMINISTRATION.

In 1928, as in previous years, the scheme of official milk records was administered by the Association through local Milk Recording Societies. The grant from the Development Fund, obtained through the Board of Agriculture for Scotland, was continued in 1928 on the same conditions as in the previous year, though the amount authorised was reduced by £350 to approximately £3000.

The Ayrshire Cattle Herd-Book Society continued their grant of £50 to the Association.

Grants were allocated to local societies on the following scale :—

1. Societies testing at intervals of not more than twenty-one days :—

   (*a*) The hire of the necessary milk-testing appliances free of annual charge, the society to upkeep the apparatus in good condition.

   (*b*) An annual grant of 50s. to each new member in his first or second year, and of 15s. to each member in his third or fourth year.

   (*c*) An annual grant of 9s. 6d. per member towards the cost of surprise check tests.

2. Societies testing at intervals of from twenty-two to twenty-eight days :—

   (*a*) The hire of the necessary milk-testing appliances free of annual charge, the society to upkeep the apparatus in good condition.

   (*b*) An annual grant of 30s. to each new member in his first or second year, and of 15s. to each member in his third or fourth year.

   (*c*) An annual grant of 8s. per member towards the cost of surprise check tests.

During the latter part of 1927 every effort was made to obtain additional applications for membership of local societies in 1928 throughout the various dairying districts of Scotland, and 71 definite applications were received. But for various reasons, such as the continued acute depression in the industry, and members disposing of their dairy herds, or changing their farms, abortion in herds, &c., there were more than the usual number of resignations. Also, a few of the new applicants could not be accommodated in existing or new local societies, owing to full membership or to their isolated position.

All the local societies or circuits which operated in 1927 continued in 1928. Two societies, owing to increased membership, found it necessary to form an additional circuit—namely, the Central and South Ayrshire Society and the Rhins of Galloway Society. On the other hand, with a view to reducing expenditure, the Dumfriesshire Society reduced the number of circuits for 1928 from 4 to 3, by extending the interval between tests to 28 days. The number of recorders' circuits in 1928 was 44, one more than in the previous year; the number of herds officially tested, 732 ; and the total number of cows officially tested, 30,293, compared with 29,459 in 1927—an increase of 834 cows, and the largest number in the history of the Association. The position in 1928 was considered satisfactory under the conditions prevailing in the industry, when the majority of agricultural societies or associations were still unable to maintain their former membership.

The following is a list of the Milk Recording Societies which operated in 1928, with the name and address of the Secretary of each society :—

Name of the Society.	Secretary.
Caithness	Mr John Robson, Jun., Lynegar, Watten.
Central and South Ayrshire (5 Circuits)	Mr E. A. Bell, M.A., B.Sc., 5 Alloway Street, Ayr.
Central Ayrshire No. 2 .	Mr James Cochrane, N.D.A., Holmes Farm, Kilmarnock.
Dumbartonshire . . .	Mr John Bilsland, Quay Place, Dumbarton.
Dumfriesshire (3 Circuits)	Mr Thomas Henderson, Solicitor, Lockerbie.
East Kilbride and District (2 Circuits)	Mr Arthur Gilmour, C.A., 23 Silvergrove Street, Glasgow.
East Lothian	Mr James L. Nisbet, Easter Newton, Kirknewton.
East Stirlingshire . . .	Mr Robert M. Reid, The Glen Farm, Falkirk.
Fenwick (High)	Mr Thomas Murdoch, West Tannacrieff, Kilmarnock.
Fife (2 Circuits) . . .	Mr William Macniven, The Nook, Southerton Road, Kirkcaldy.
Highland	Mr J. M. Hunter, Queensgate, Inverness.
Islay	Mr D. M'Millan, Eorrabus, Bridgend.
"John Speir"	Mr William Longwill, Hawhill, Dalry.
Kintyre	Mr Robert Young, Drum, Kilkenzie.
Lesmahagow	Mr Gavin Hamilton, British Linen Bank, Lesmahagow.
Lower Wigtownshire (2 Circuits)	Mr David Breckenridge, Solicitor, Newton-Stewart.
Montgomerie	Mr Robert Laird, Lawthorn, Irvine.
North of Scotland (2 Circuits)	Mr John A. Carlyle, B.Sc., Prudential Buildings, Arbroath.
Renfrew and Bute (2 Circuits)	Mr Thomas Hunter, Solicitor, 24 High Street, Paisley.
Renfrewshire (Upper Ward)	Mr William Henderson, Old Crookston, Nitshill.
Rhins of Galloway (5 Circuits)	Mr John Gibson, Solicitor, Stranraer.
Roxburgh and District .	Colonel A. Haddon, Solicitor, Hawick.
Stewarton and Dunlop .	Mr John Craig, Cauldhame, Dunlop.
Stewartry of Kirkcudbright (5 Circuits)	Mr Patrick Gifford, Solicitor, Castle-Douglas.
West Lothian	Mr John Crooks, Little Ochiltree, Uphall.

SEASON 1928.

The table on the following page shows for each society the number of herds, the number of cows tested, the average interval between the tests, and the duration of the recording season :—

	Name of the Society or Circuit.	No. of Herds.	No. of Cows Tested.	Average interval between Tests, in Days.	Duration of Recording Season, in Weeks.
1.	Caithness	1	12	21	52
	Central and South Ayrshire—				
2.	Ayr and Coylton . . .	18	533	21	52
3.	Cumnock and District . .	16	513	21	52
4.	Girvan and Maybole . . .	18	903	21	52
5.	Kilmarnock and Monkton . .	19	668	21	52
6.	Mauchline and Drongan . .	15	518	21	52
7.	Central Ayrshire No. 2 . . .	16	647	21	52
8.	Dumbartonshire	20	644	28	52
	Dumfriesshire—				
9.	Mid Annandale	20	834	28	52
10.	Upper Annandale . . .	20	828	28	52
11.	Upper Nithsdale . . .	20	874	28	52
	East Kilbride and District—				
12.	East Kilbride and District. .	21	730	28	52
13.	Hamilton and District . .	20	653	28	52
14.	East Lothian	10	317	21	52
15.	East Stirlingshire	18	527	23	52
16.	Fenwick (High)	18	699	21	52
	Fife—				
17.	Dunfermline and Kirkcaldy .	18	577	24	52
18.	Cupar-Fife and Perth . .	19	453	28	52
19.	Highland	20	663	26	52
20.	Islay	6	118	21	41
21.	"John Speir"	18	567	24	52
22.	Kintyre	18	843	28	52
23.	Lesmahagow	19	562	28	52
	Lower Wigtownshire—				
24.	Whithorn and Port William .	18	1073	28	52
25.	Newton-Stewart and Wigtown .	10	511	28	52
26.	Montgomerie	15	506	28	52
	North of Scotland—				
27.	Forfarshire and Kincardineshire	16	445	28	52
28.	Aberdeen and District . .	17	614	28	52
	Renfrew and Bute—				
29.	Bute and Inverkip . . .	18	557	26	52
30.	Paisley and Kilmacolm . .	16	548	22	52
31.	Renfrewshire (Upper Ward) . .	18	636	21	52
	Rhins of Galloway—				
32.	Kirkcolm and District . .	15	1032	21	52
33.	Kirkmaiden and District . .	12	1028	23	52
34.	Leswalt	14	1050	21	52
35.	Luce Valley	15	930	21	52
36.	Stranraer and District . .	15	1017	23	52
37.	Roxburgh and District . . .	14	470	21	52
38.	Stewarton and Dunlop . . .	16	476	21	52
	Stewartry of Kirkcudbright—				
39.	Dalbeattie and New Abbey .	21	905	27	52
40.	Castle-Douglas & New Galloway	18	967	25	52
41.	Castle-Douglas and District .	18	993	25	52
42.	Kirkcudbright and District .	20	1171	26	52
43.	Borgue, Twynholm, & Gatehouse	19	951	24	52
44.	West Lothian	19	730	26	52
	Total No. . . .	732	30,293	...	...

DEFINITIONS.

The milk records compiled by the Association are records of the estimated quantity of milk produced by each cow in a separate lactation, and of the estimated percentage of milk fat contained in the milk. For convenience a gallon of milk was reckoned as 10 lb. A gallon of milk of average quality weighs almost exactly 10⅓ lb. The following further particulars concerning each record were also given wherever possible :—

Name of cow, byre number, and herd-book number.
Sire of cow, and herd-book number of sire.
Dam of cow, and herd-book number of dam.
Date of birth.
Date of calving preceding opening of record.
Number of weeks in milk.
Date of next calving after record closed.

The following particulars of the preceding record were appended to each record, where available :—

Date of calving preceding opening of record.
Quantity of milk in gallons.
Percentage of fat in milk.
Number of weeks in milk.

The milk yields were estimated in respect of quantity and milk-fat percentage from the results of systematic periodic tests by trained recorders approved by the Association. The recorders visited the farms for this purpose at intervals varying from twenty-one to twenty-eight days, and each day of visit was regarded as the middle day of the period covered by the visit. Milk records estimated in this way approximate closely to the actual milk yields.

METHOD OF RECORDING ADOPTED—OFFICIAL RECORDS.

A distinctive feature of milk recording in Scotland in 1928, as in former years, was that the official records were entirely the work of trained official recorders. Recorders had previously to undergo a special course of training in milk recording at the Dairy School for Scotland at Kilmarnock, or other approved College of Agriculture. Only candidates of good character and good general education were selected to attend these courses; and all recorders, before appointment, were approved by the Executive Committee of the Association.

Fuller details of the method of recording adopted will be found in the Association's annual report. The byre sheets were written out in duplicate. The principal copies were posted at regular intervals to the office of the Association, and the carbon copies left with the respective members.

The recorder transferred the results from the extended byre sheet to the milk record book for the herd indelibly in ink, each cow being assigned a separate page, at the top of which full particulars of the cow were entered, including the indelible tattoo marks on the animal.

The byre sheets were carefully revised and corrected in the Association's office during the season, and a list of the necessary corrections sent to each recorder periodically to be entered in the record books.

Visits of inspection were made to each recorder and to the members of local societies at the different farms periodically throughout the year by members of the Association's staff, and reports thereon submitted to the Executive Committee. The Executive Committee reserved the right to withdraw approval of any recorder at any time or to limit the period of service of any recorder with any particular society. Members of local societies refusing to observe any of the rules of the Association, or deemed to be guilty of conduct injurious to the true interests of milk recording, were liable to be temporarily or permanently suspended.

Another distinctive feature was the surprise check tests, the records of each herd being checked in this way about two or three times throughout the year. The recorder was instructed, by a letter from the superintendent on a date unknown to recorder and owner of herd, to remain at the same farm another day and make another complete twenty-four hours' test. The surprise test results were entered on special buff-coloured byre sheets, and in the record books in red ink immediately below the results of the regular test of the previous day. The buff byre sheets were posted to the Association's office with the other sheets, and any abnormal differences were immediately noted and reported to the Executive Committee.

As a result of this system of surprise check tests, each page of the 1928 milk record books contains two or three lines of entries in red, comparison of which with the immediately preceding entries provides valuable evidence as to the genuineness of the milk records.

In addition to the surprise check tests made by the recorder, a number of independent surprise tests were made by the Association's staff, in order to check the recorder's work.

All records were closed at the end of December, the current lactations being carried forward to the new books of the following year. Finally, summary sheets were written out in duplicate showing the total milk yields for each cow for the lactation or part lactation, with full particulars of the cow, dates of calving, &c. The principal copy of the summary sheet was posted to the Association's office with the record book, and the second copy left with the owner of the herd.

All record books and summary sheets were carefully revised, corrected in detail, and initialled in the Association's office during the next few months, the record books being returned later to the respective members, and the summary sheets retained and bound for future reference.

The milk records were next classified into three groups for cows and heifers respectively, on the following basis. Experience has confirmed the view that a very useful comparison is obtained by reckoning the yields at their estimated equivalent of milk of 1 per cent fat. Such a comparison takes into consideration both the quantity and the quality of the milk.

Cows with a milk record equivalent to not less than 2500 gallons at 1 per cent fat, and heifers with a milk record equivalent to not less than 2000 gallons at 1 per cent fat, were grouped into Class I. Cows and heifers with milk records of less than two-thirds of these amounts—viz., 1660 and 1330 gallons respectively—were grouped into Class III.

The following short table shows the corresponding values of these yields in fairly good milk of 3·5 per cent milk fat:—

Class.	Yield in Milk of 1 per cent Fat. (Gallons.)	Corresponding Yield in Milk of 3·5 per cent Fat. (Gallons.)
Cows in Class I . .	Not less than 2500 .	714
Heifers in Class I. .	Not less than 2000 .	571
Cows in Class III. .	Less than 1660 . .	474
Heifers in Class III. .	Less than 1330 . .	380

All cows and heifers falling between these limits would come into Class II. Such animals naturally claim less attention than the good milkers or the obviously unprofitable animals. It should be noted, however, that Class II. would include a certain number of unclassified yields, as there were a number of instances where, from various causes, the results of a whole normal lactation could not be obtained.

The Association will shortly publish an Annual Report giving all details of the work of the Association, and of each local Milk Recording Society during 1928. This report will include tables showing for each farm the number of cows and heifers tested and the number and percentage included in Classes I. and III. respectively. Each herd is included under the respective local society, but is represented only by an alphabetical letter, the owner being advised privately of the identity in the report of his own herd or herds. From these tables any member may see at a glance how his herd compares with other herds in the same or any other district, and the improvement in his own herd compared with previous years. The report will also show in tabular form the percentage of Class I. and Class III. animals of all animals tested under the Association's scheme during the year, and will thus afford a valuable indication of the progress in milk production generally.

An important feature of the Association's annual reports, from 1917 inclusive, is the register of good milking cows with the names and addresses of owners and full particulars of the milk records. This register includes only the records of animals with a milk yield equivalent to not less than 2800 gallons containing 1 per cent of milk fat in the case of a cow, and 2240 gallons containing 1 per cent of milk fat in the case of a heifer, and is further restricted to animals which completed their lactation before the end of the year and gave birth to another calf before 1st May of the year following. The fullest available particulars of each record are given, and all lists of records are submitted to the owners of the respective animals for revision before publication. The register is of great value to all interested in increased milk production and in the breeding and rearing of animals of the best milking strains, and is invaluable for reference.

It should always be kept in mind when making a comparison of cows in different herds or in different districts, that the different methods of dairying practised have a considerable influence on the milk yields, and that therefore milk yields alone do not necessarily indicate the true relative inherent or hereditary milking qualities of the animal. But the authenticated milk records compiled by the Association are of inestimable value to breeders and owners of dairy cows if properly interpreted.

REVIEW OF 1928—OFFICIAL RECORDS.

Recording was carried on in 1928 by 44 local societies or circuits, comprising 732 members, an increase of one circuit from the previous year. The number of cows tested in 1928 was 30,293, compared with 29,459 in 1927, an increase of 834 cows, and the largest number officially tested in the history of the Association.

The percentage of dairy cows regularly recorded in Scotland compares very favourably with that of other countries. With the exception of Denmark, where milk recording was introduced earlier than in Scotland, and where conditions prevail more favourable to movements organised on a co-operative basis, Scotland contains a higher proportion of recorded cows than any other country in the world. Countries newer in this respect may show a more rapid rate of progress for recent years, but only up to a point considerably below that already reached in this country.

During the year 14 recorders, for various reasons, terminated their engagements. The Executive Committee, however, in the same period approved of 20 applicants for the position of milk recorder, and were able to recommend a sufficient number of qualified recorders. Fourteen women recorders were employed in 1928, and 34 men recorders.

In this connection the Committee, as formerly, were indebted to the West of Scotland Agricultural College for giving special courses of instruction for milk recorders to meet the Association's requirements. Only one special course was required in 1928—namely, in December. Eighteen selected candidates attended the course, and 16 obtained the certificate.

The Executive Committee purchased the supplies of milk-testing apparatus, sulphuric acid, and amylic alcohol for local societies, as in previous years.

The system of surprise check tests, introduced in 1920, was continued in 1928. The total number of check tests made by recorders during the season was 1233, or an average of approximately two check tests per head tested throughout the whole season. In no instance in 1928 was the average milk yield for the herd more than 3 lb. milk daily less on the occasion of a check test, as compared with the previous day. Only 3 herds showed an average of over 2½ lb. less, and only 7 herds an average of over 2 lb. less, including the 3 herds already referred to. In addition to the surprise tests arranged for and carried out by the recorders, the Assistant Superintendent made 40 special check tests of different herds. The results in most instances agreed very closely in regard both to average milk yields and fat percentages with those of the recorders' previous tests. Only four herds showed an average daily yield of over 2 lb. less on the occasion of a special check test, and only 3 herds had an average of over 2 lb. more. With regard to average fat percentages, only 1 herd showed an average fat percentage of over ·3 per cent lower, and two herds an average of over ·3 per cent higher. With the exception of four herds, the average fat percentages were all within ·2 per cent of those obtained by the recorders at the previous tests.

With regard to the general conditions for milk production in 1928, the weather during the year was not particularly favourable. At the beginning of the grazing season the weather was dull, cold, and unsettled, and though the next five or six weeks were bright and dry growth was slow owing to the low temperature. Grass was not at all plentiful in the spring, and the summer was comparatively cold with lack of sunshine. Yet pastures improved as the season advanced, and the mild unsettled weather during the autumn was more favourable. In most dairying districts hay was fully average in bulk, and turnips developed into a sound bulky crop of good quality. Prices generally for dairy products remained low relatively to purchased foods and other costs of production, and from the financial point of view the year was probably little better than those immediately preceding it, and was not a satisfactory one for dairy farmers.

In the case of recorded herds, other conditions militated against a higher average yield. As in recent years, a very considerable proportion of herds which had been recorded for a period of years were entirely dispersed, or for other reasons already referred to did not continue to be recorded, while a comparatively large number of "new herds," or herds tested for not more than three years, were included. The proportion of regular "milk record herds" was thereby correspondingly reduced.

The following table shows for each society or circuit the number and percentage of cows and heifers of each class in 1928, with a comparison of the average results from 1914 to 1928 inclusive:—

Society or Circuit.	Cows and Heifers.				
	Number.			Per Cent.	
	Total.	Class I.	Class III.	Class I.	Class III.
1. Caithness	12	6	2	50	17
Central and South Ayrshire—					
2. Ayr and Coylton	533	407	8	78	2*
3. Cumnock and District	513	387	7	75	1
4. Girvan and Maybole	903	625	21	69	2
5. Kilmarnock and Monkton	668	452	36	69	5*
6. Mauchline and Drongan	518	389	12	77	2*
7. Central Ayrshire No. 2	647	542	3	84	...
8. Dumbartonshire	644	443	17	69	3
Dumfriesshire—					
9. Mid Annandale	834	559	12	67	1
10. Upper Annandale	828	557	8	67	1
11. Upper Nithsdale	874	540	15	62	2
East Kilbride and District—					
12. East Kilbride and District	730	430	30	61	4*
13. Hamilton and District	653	377	23	58	4
14. East Lothian	317	251	2	79	1
15. East Stirlingshire	527	348	7	68	1*
16. Fenwick (High)	699	428	5	74	1*
Fife—					
17. Dunfermline and Kirkcaldy	577	426	3	74	1
18. Cupar-Fife and Perth	453	251	14	56	3*
19. Highland	663	468	4	77	1*
20. Islay	118	36	11	33	10*
21. "John Speir"	567	317	15	56	3

Society or Circuit.	Cows and Heifers.				
	Number.			Per Cent.	
	Total.	Class I.	Class III.	Class I.	Class III.
22. Kintyre	843	512	9	61	1
23. Lesmahagow	562	371	6	81	1*
Lower Wigtownshire—					
24. Whithorn and Port William	1073	454	123	44	12*
25. Newton-Stewart and Wigtown	511	301	11	64	3*
26. Montgomerie	506	380	7	75	1
North of Scotland—					
27. Forfarshire and Kincardineshire	445	347	...	84	...*
28. Aberdeen and District	614	395	9	70	2*
Renfrew and Bute—					
29. Bute and Inverkip	557	357	18	64	3
30. Paisley and Kilmacolm	548	369	3	67	1
31. Renfrewshire (Upper Ward)	636	365	9	60	1*
Rhins of Galloway—					
32. Kirkcolm and District	1032	621	39	65	4*
33. Kirkmaiden and District	1028	727	15	73	2*
34. Leswalt	1050	711	21	68	2
35. Luce Valley	930	512	46	56	5*
36. Stranraer and District	1017	711	18	70	2
37. Roxburgh and District	470	231	9	76	2*
38. Stewarton and Dunlop	476	330	2	70	...*
Stewartry of Kirkcudbright—					
39. Dalbeattie and New Abbey	905	561	34	62	4
40. Castle-Douglas and New Galloway	967	558	19	58	2
41. Castle-Douglas and District	993	538	30	54	3
42. Kirkcudbright and District	1171	625	16	66	2*
43. Borgue, Twynholm, and Gatehouse	951	575	30	66	3*
44. West Lothian	730	437	12	64	2*
Of all the cows and heifers tested in 1928	30,293	19,227	741	66*	2½*
Comparison with 1927	29,459			65¾	2¾
Comparison with 1926	29,236			65½	2¾
Comparison with 1925	28,410			60	5
Comparison with 1924	27,957			65	3
Comparison with 1923	26,952			65	2
Comparison with 1922	27,275			63	2
Comparison with 1921	26,752			58¾	4
Comparison with 1920	24,191			55¼	3¼
Comparison with 1919	20,786			49½	4½
Comparison with 1918	17,827			49	5½
Comparison with 1917	19,564			50	4¾
Comparison with 1916	22,702			53¼	4¾
Comparison with 1915	26,572			46	6
Comparison with 1914	26,424			39½	9

Excluding herds tested during only a part of the recording season—1200 cows in all.

Reviewing the results of the 44 circuits as a whole, we find that of the total of 30,293 cows and heifers tested in 1928, excluding 1200 animals in herds tested during only a part of the season, and therefore not classified, 19,227 were included in Class I., and only 741 in Class III. This is equivalent to 66 per cent in Class I. and 2½ per cent in Class III. Thus, 66 per cent of all the cows and heifers tested gave a milk yield equivalent to not less than 714 gallons containing 3·5 per cent milk fat in the case of a cow, and 571 gallons in the case of a heifer; while only 2½ per cent gave a milk yield equivalent to less than 474 gallons containing 3·5 per cent milk fat in the case of a cow, and 380 gallons in the case of a heifer. In 1925, 60 per cent were eligible for Class I., and 5 per cent were included in Class III.

The average standard attained in 1928 was undoubtedly lowered by the inclusion of the large proportion of "new" herds, and by the adverse trading conditions already referred to, yet it will be observed from the preceding table that the proportion of animals qualifying for inclusion in Class I. in 1928 is the highest reached since the commencement of official milk recording twenty-six years ago.

It will be observed also that the proportion of good milking or Class I. cows and heifers to the total animals tested has increased from 39½ per cent in 1914 (when the present basis of classification was adopted) to 66 per cent in 1928, while the proportion of Class III., or obviously unprofitable, animals has been reduced in the same period from 9 per cent to 2½ per cent. These figures indicate a large increase in the volume of milk produced during the last fourteen years, and represent probably only about half of the progress made in tested herds since the introduction of milk recording in 1903. It is estimated that milk record herds generally are at the present time giving higher average yields than unrecorded herds to the extent of at least 200 gallons per cow per annum.

But improvement from milk recording is not confined wholly to herds officially recorded in 1928. A very much larger number, about twice as many herds, have been tested and recorded for longer or shorter periods since the Association's scheme of milk recording was introduced. And when we consider the spread or diffusion of the benefits arising directly or indirectly from milk recording, we find that these penetrate widely in various directions other than that of individual members of milk recording societies. For example, there is the effect on the remaining four-fifths of the dairy herds of the country. The wide dissemination annually of milk record stock bulls and milk record cows for breeding purposes among untested herds alone must exercise an incalculable improving influence on a very large number of these herds.

And such influence is increasing with the rapid extension of the practice of using only milk record bulls in dairy herds.

Also, there is the powerful educational influence and force of example permeating and leavening the whole mass of dairy farmers, and gradually creating a new habit of thought in the realm of milk production. If a census could be taken in this connection, it would probably be found that a very considerable proportion of herd owners outside the membership of milk recording societies are in one way or another testing and recording the milk yields of their herds who would never have done so had systematic or official milk recording not been in operation. The same consideration applies to the more enlightened methods of selecting, breeding, and feeding on milk record lines which have been adopted in many herds not officially recorded.

But there is another direction in which advantage from milk recording is penetrating widely beyond the ranks of milk recording societies. Increased home production of milk tends to lower the cost to the urban populations, and some portion of the return from milk recording is handed on beyond the actual milk producers. Indeed, the general economic position in the milk industry to-day supports the contention that the advantages of milk recording are to a large extent absorbed in this direction. Even good-milking cows are leaving only a small margin of profit to the producer.

There remains a still wider aspect of the question. Large numbers of milk record bulls and young cows are exported annually, and go to maintain and improve the milking qualities of the dairy herds of the empire. Every stage of progress in this direction is a step forward to the goal of a self-supporting community of nations under the British flag.

It is evident, therefore, that there may be a genuine "development" other and more valuable than in numbers. And the question naturally arises as to how the very modest grant which has been given annually from the Development Fund for official or systematic milk recording in Scotland could be spent in any other direction to ensure a better return.

NEW SCHEME OF PRIVATE OR UNOFFICIAL MILK RECORDS.

The Association's new scheme of private or unofficial milk records, inaugurated in 1924, was continued in 1928 on the same lines as in previous years. The chief objects are to establish milk recording on a wider and more popular basis, and to induce a greater number ultimately to adopt the system of official authenticated milk records.

Milk recording under this scheme was administered directly by the Association. The following inducements were offered to members :—

(*a*) The hire of a set of appliances for testing purposes, free of annual charge, the member to upkeep the apparatus in good condition.

(*b*) Byre sheets and record books free of charge, with stamped addressed envelopes for return of byre sheets.

(*c*) All calculations in byre sheets and record books to be made in the Superintendent's office, and the sheets and record books to be returned to the herd owners duly extended and completed.

(*d*) The total charge on members to be limited to an annual subscription to the Association at the rate of 1s. 6d. per cow tested.

One hundred and forty-one of the 187 members of 1927 continued in 1928, and 20 new members were enrolled. Six of the members were transferred to the scheme of official recording for season 1928. The total membership for 1928 was 155, and the total number of cows included 2964. This shows a decrease of 32 members for unofficial records. But, on the other hand, this new scheme of recording had in 1928 already been the means of obtaining for official recording 24 new members of a very desirable type, which is one of the objects for which it was promoted.

There are several reasons why the membership under this scheme for any given year cannot be expected under present conditions to show any great increase. The better milking herds are being transferred to official records. Further transfers have been arranged for season 1929. At the other extremity there are a considerable number of very poor herds, the owners of which are evidently unduly discouraged by the very low yields recorded, and apparently have not the mentality to appreciate the possibilities of effecting the much-needed improvement. In addition, the charge for recording, at the rate of 1s. 6d. per cow tested, which the Association have been compelled to make, is considered by the general body of members and prospective members to be excessive, and, as was anticipated, is proving a severe handicap on all efforts to make the scheme popular among the rank and file of dairy farmers. It is the reason given by a considerable number of members for severing their connection with the Association, as they find after about two years' experience they can carry on recording on similar lines independently at smaller cost.

But this new scheme of unofficial recording is undoubtedly serving a most useful purpose. For reasons already given, its effect must not be measured merely by the number of herds included in any particular year. And a considerable proportion of the members who have resigned and meantime severed their connection with the Association have formed the milk recording habit, and ought ultimately to be found among members of milk recording societies. But if only the charge could be reduced to that originally recommended by the Association—namely, 6d. per cow—an extension of the movement might confidently be expected.

The following is a brief outline of the method of recording adopted :—

All cows in the herd yielding milk must be included in the record. Each cow must be clearly distinguished in the byre by a stall number on the wall. On the occasion of a test the cows must be milked in the same rotation evening and morning, and care must be taken that the milk of each cow for twenty-four hours, and for twenty-four hours only, is included in the test. The owner, or his agent, is required to weigh the milk of each cow evening and next morning, by means of the spring balance and pail provided, once every twenty-one to twenty-eight days, and to enter the results and other necessary particulars in the byre sheet provided by the Association; and each byre sheet must be signed by the owner, or on his behalf, as correct in respect of all entries made. The byre sheet is sent by first post to the Superintendent, and calculated and extended by the Association's staff, and returned to the owner as soon as completed. A milk record book for each herd is written out in the Association's office. The record books are closed at the end of the recording season as at 30th November, and the results summarised and entered in special summary sheets. The record books and copies of the summary sheets, when completed and checked, are sent to the respective owners of the herds.

It must, of course, be clearly understood that the milk records compiled under this scheme are purely unofficial, unauthenticated records, and have no connection with the official authenticated milk records of the Association. But from letters received and opinions expressed by members it is quite evident that very useful guidance can be obtained from the records. Several members have recommended the scheme to other farmers, or forwarded the names and addresses of likely new members.

PROSPECTS FOR 1929.

Propaganda on an extensive scale is carried through each year. Applications for membership, or for further particulars, are invited through press advertisements, articles, &c. All members of the Association, members of local milk recording societies, members under the scheme of unofficial records, and milk recorders are requested individually to assist in obtaining new members for either scheme in their respective districts, and to send to the Superintendent the names and addresses of all local dairy farmers likely to be interested. In this way a comprehensive propaganda list of possible new members is compiled. To each address on this list are sent circular letters and propaganda literature giving particulars of both systems of recording and enumerating the advantages to be obtained, and a form of application. Following on the distribution of literature, personal visits are made to most of the farms by the Association's staff, and the herd owners are classified into groups according to the degree of probability of their becoming new members. Wherever any particular interest is shown the visit is repeated until a definite decision is reached. By this method, continued over a number of years, dairy farmers who were formerly quite indifferent have been enrolled as new members.

Similar efforts were made to obtain additional applications for membership of local societies in 1929. With the scheme of private or unofficial milk records in operation, it was possible to carry out propaganda work for both schemes simultaneously, and over 2000 circular and other letters, with propaganda literature, were distributed to over 1500 dairy herd owners throughout Scotland. In addition, 782 personal visits were made. But the severe depression in dairy farming which has existed for several years is evidently having a cumulative effect on herd owners, who are seeking to cut down expenditure in every possible direction; and there is the greatest difficulty in persuading them to adopt any new scheme entailing the least additional expenditure. The number of definite new applications for official records for season 1929 obtained to date is 64, and a number of prospective new members for 1930 have also been obtained.

All the local societies of 1928 have continued in 1929; though two societies in less intensively dairying districts, with comparatively long distances between members—namely, the East Lothian Society and the Roxburgh and District Society,—with a view to economy in working, amalgamated to form one larger society, the East Lothian and Border Society. A motor car is provided for the recorder as more convenient for the longer journeys between members.

The number of recorders' circuits in 1929 is 43; and the number of herds and cows officially tested will be approximately the same as in the previous year.

The Committee are in a position to recommend a sufficient number of qualified recorders. All vacancies at the beginning of the year have been filled, and there remain a number of approved recorders on the waiting list. In this connection the Committee, as formerly, are indebted to the West of Scotland Agricultural College for giving special courses of instruction for milk recorders to meet the Association's requirements.

The Committee have arranged for supplies of sulphuric acid, amylic alcohol, and milk-testing apparatus for local societies in 1929.

With regard to unofficial records, 121 of the 155 members of 1928 have continued in 1929, and 20 new members have been enrolled. Six of the members have been transferred to the scheme of official recording for season 1929, making a total of 30 transferred. The total membership for unofficial recording at present is 135, with approximately 2520 cows.

GENERAL REVIEW.

The Executive Committee are constantly reviewing the position to ascertain how milk recording could be made to better serve the dairy farming community as a whole. But they find their sphere of initiative restricted, chiefly by two conditions. There is the necessity for the utmost economy in expenditure. Farming in any branch is not too prosperous at the present time, and in this respect dairy farming is no exception. In consequence herd owners generally cannot readily be induced to embark, or continue, in any new enterprise, however promising, which entails any considerable cost. And the Association's annual grant from public funds has been materially reduced in recent years, in common with those of other departments.

The second consideration which must always be kept in view by the Executive Committee is the trouble or inconvenience to which members of milk recording societies would be committed. In these days more particularly time lost during working hours on the dairy farm means much to the already harassed individuals concerned. There is also the intense native conservatism of the average farmer; his extreme reluctance to change his methods or the procedure to which he has become accustomed.

The Committee's aim throughout, therefore, has been to evolve the most effective combination of reliability, economy, and convenience to members. And in this they believe they have attained considerable success. The present system of official recording has been developed and improved as experience has suggested during a period of over twenty-five years, and gives results which compare very favourably with those in any other country. It is not claimed that the whole of the records are accurate to a degree to meet the requirements of all scientific investigators, but that any material departure from the present system would probably entail additional cost or inconvenience to the herd owner incommensurate with any additional service to him.

It is hardly necessary to recapitulate the beneficial results of milk recording in what have been termed the regular milk record herds of Scotland. These are now well known to all who have any intimate acquaintance with the subject. Average annual milk yields have been increased to a remarkable degree, a number of herds of considerable size having reached the high standard of an average of 1000 gallons per cow per year. The Scottish official milk records have gained the confidence of buyers at home and abroad in a measure most gratifying to all concerned, while the capital or selling value of good milk record stock has been enhanced out of proportion even to the improved milk yields. And, as stated elsewhere in this report, the percentage of dairy cows regularly recorded in Scotland compares very favourably with that of other countries, being exceeded only in Denmark, where conditions prevail more favourably to co-operative enterprises of this nature.

But the proportion of recorded cows in Scotland is still only about 17 per cent of the total dairy cows in the country, or excluding those counties where dairying is practised to only a very limited extent, about 20 per cent. And a position has been reached where further progress is slow and difficult, the new enrolments during the last few years practically only balancing the losses in membership.

It is this aspect of the subject which has more recently engaged the special attention of the Committee. The problem, as already indicated, is common to other countries. In view of all the circumstances it is somewhat baffling. Probably the explanation is to be found in the personal element. Experience shows that in practically every movement of a voluntary nature to improve the conditions of a community the progressive section is relatively the smaller, and is more or less sharply defined.

At any rate, it is quite evident that the milk recording societies in Scotland already include most of the more enterprising dairy farmers generally, and that there is a considerable gap in this respect between the two sections, almost impossible to bridge by any conceivable adaptation of methods. Those still outside the movement are evidently either not able or not willing to give the thought and attention which must necessarily be given if milk recording is to result in appreciable benefit to the herd owner. But it is equally clear that if all took full advantage of one or other of the existing systems of milk recording, a very considerable measure of increased prosperity would attend the dairying industry.

Naturally every dairy farmer desires to increase his income. But the question is often asked: "How could milk recording help me; none of my stock are registered, and I rear only for my own herd?" Even members of milk recording societies in many instances apparently do not realise to what extent their milk recorder might help them; they pay far too little attention to their records.

The most recent development of the Association's activities is in the direction of extending advisory work among members of milk recording societies and prospective members, through the instrumentality of the recorders. It is hoped in this way to encourage many of the more lukewarm members, and to interest likely new members more keenly in the possibilities of improvement. The special course of instruction for intending recorders has been made more comprehensive, and includes not only the detailed routine of weighing, sampling, and testing of milk, and calculating and entering of results, but also the principles underlying the improvement of the dairy herd, and instruction of a directly practical nature in the selection, breeding, and feeding of dairy cows. With regard to the present recorders, a considerable proportion of these have already served a good many years, and have qualified in this particular direction in the school of experience.

Of course, too much need not be expected from this development. Here again the demands of economy impose limitations; the scale of remuneration offered to recorders will not attract candidates of the most suitable type. And the more successful members have probably nothing to learn from the best recorder. But the type of herd owner most in need of guidance in this important connection may obtain it in the most direct and intimate way, and will stand to benefit the most.

As a general rule, the surest way to increase income is to increase output per unit. In milk production this simply means increasing the milk yield per cow. That there is great scope for even the moderately enterprising farmer in this direction is amply proved by the wide differences in the milk yields of different herds. The latest official census of production for Scotland puts the average annual milk yield per cow for the whole country at not more than 480 gallons. This is quite 200 gallons below the average yield of the officially recorded herds, about 730 in number comprising about 30,000 cows. A good proportion of milk recorded herds show an average yield of over 800 gallons, and a smaller number of over 900 gallons. The monetary value of these improvements may be valued at one shilling per gallon of milk. Thus we find many dairy farmers selling off their cows while others are making good.

What, then, is the explanation? Surely all would wish to obtain equally good results when these are attainable. A great deal must be attributed to personal worth, but equally important probably is the method pursued. Success usually lies in adopting a considered and definite policy and persevering in it. The royal road to success in milk production is perseverance in the well-proved measures that have already raised the average annual milk yield in many existing herds to over 800 gallons per cow. Herds of this standard efficiently and economically managed do not fail to pay, even under present conditions in the industry.

Of necessity some trouble must be taken and considerable time allowed. There is an inexorable law, "Out of nothing, nothing comes"; but the sooner one gets on to the best methods, the sooner will the desired results be achieved, and the enterprise will be interesting and profitable.

The first step in herd improvement is to study each cow individually, and survey the position in this way. It is of primary importance to know the annual milk yield of each cow in the byre under the same system of management. For this purpose regular milk recording is essential. This involves either daily or periodic weighing and recording of the milk yield of each cow, but only in this way can a reliable system of grading be adopted. It is a common experience after the first year's recording to find that about 15 per cent of the cows have not been paying their way, while about the same percentage have been yielding double.

The next step, obviously, is to get rid of the poor cows as soon as possible. Even one profitable cow bought for every two unprofitable cows sold is a piece of very good business. This will give for the second year, other conditions being equal, one profit against two previous losses: possibly a £20 profit against a £10 loss, or an increased income in comparison with the previous year of £30.

For a simple illustration, let us take the case of an ordinary herd of forty cows, and work it out in this way. This herd, assuming it to be a typical one, will probably show six unprofitable cows and six high-yielders. The average annual milk yield for Scotland has been officially computed at 480 gallons per cow. From our knowledge of the present financial conditions in the industry we may assume that cows yielding only 480 gallons are merely paying their way; that, generally speaking, all cows under this standard are unprofitable; and that the cows above this standard have to make up for the cows below before providing a profit for their owner. The value of 480 gallons at one shilling per gallon is £24. We may therefore draw the further conclusion that the average total cost of keeping a dairy cow in Scotland is not much under £24 per year. On the same basis the annual value of the produce of a 900-gallon cow is £45, and the profit from this cow about £20. Thus if the six losing cows are sold and are replaced by only three 900-gallon cows, there will be an increased profit for the second year from this transaction alone, other conditions being equal, of about £90, and three cows less to deal with. Better still, if the whole of the six cows are replaced, the increase in income will amount to about £150 per year.

But so far we have indicated only one line of advance in our scheme of improvement. Attention should be given also from the first to better methods of feeding—namely, to feeding according to individual daily milk yield. Indeed, the inherently good milking cows cannot be fairly selected until all are placed on a properly balanced diet carefully regulated to individual production. Selection upon any other basis would be misleading. Many a potential good milking cow has failed to distinguish herself because she has been on a comparatively poor diet to her daily yield. The herd should be fed on some approved scale according to individual daily yield, such as that recommended by this Association. This has the further advantage of being both an effective and a profitable method of feeding, and will be found to raise the average herd yield appreciably. Probably half the herd of forty cows will be improved by about 100 gallons per cow per year; and the additional profit should be at least £65, bringing our estimated increased profit on the herd in the second year to £215 per annum.

If good pastures are available, the summer feeding is a simple matter. Winter feeding is generally a more difficult proposition. The chief function of the ration is to provide the cow with nutrients for the maintenance of her body and for the production of milk. A good ration should be bulky, provide some succulence, and have a laxative effect. The bulky portion is best provided in the form of good hay, bruised oats, and wheat bran, and the succulence in the form of roots and silage. Variety in the ration is essential; if sufficient variety be provided there is little danger of the ration being deficient in minerals or vitamins. As a general rule, a winter ration should include hay, roots, or silage, and at least three concentrates. The hay and roots provided should furnish enough nutrients for maintenance and the production of the first gallon of milk, and can be considered as the basal ration to which concentrates are added for further production. A good basal ration for a cow 9 cwt. live weight is 40 lb. swedes or 25 lb. silage and 16 lb. hay; for larger or smaller animals this allowance can be proportionately altered.

When the production of milk goes above one gallon daily, concentrates must be fed in addition to the basal ration. A limited number of suitable concentrate mixtures are given in the following table. Only a comparatively few concentrates are included, but any one of these can be replaced by another of similar composition and character when prices indicate this to be desirable. A fair amount of food mixture should be made up at one time; consequently the quantities are stated in cwts., and each mixture is half a ton.

CONCENTRATE MIXTURES.*

	With Succulence.												Without Succulence.		
Pounds per Gallon of Milk after First Gallon.	3½						4						3½	4	
MIXTURE NO.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	XIII.	XIV.	XV.
Barley . . .	..	..	..	..	..	4	..	4	..	..	..	2	..	..	2
Maize . . .	2	3	1	3	3	..	..	..	..	..	..	..	3	..	..
Oats (bruised) . .	2	..	..	2	..	..	5	2	6	4	4	2	3	3	2
Wheat bran . .	2	..	2	..	..	..	2	2	..	2	..	..	..	2	3
Brewers' dried grains .	..	2	..	..	..	..	..	..	..	..	3	3	..	..	..
Palmnut cake . .	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..
Distillers' dried grains .	..	..	..	..	3	3	1	..	..	..	..	..	..	..	..
Bean meal . . .	2	3	7	..	2	..	..	..	3	..	..	..	..	3	..
Linseed cake . .	..	..	..	..	..	..	..	..	..	2	..	..	3	2	..
Undecorticated earthnut cake . .	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..
Decorticated cotton cake . . .	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Soybean meal . .	..	..	..	..	..	..	2	..	..	2	3	3	..	..	3
Decorticated earthnut cake . . .	..	2	..	3	..	..	..	2	..	..	..	..	..	..	..
Fish meal . . .	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..
Total weight of Mixture, Cwts.	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

* This Table is taken from Bulletin No. 106 of the West of Scotland Agricultural College.

For example, in the case of a cow of average size giving four gallons of milk daily on house feeding, a satisfactory ration would be 30 lb. swedes, 18 lb. hay, and 12 lb. of mixture No. VII. When straw must be fed, an extra half-pound of concentrate mixture should be allowed for every 4 lb. of hay replaced by straw. 1 lb. of hay may be taken as the equivalent of 5 lb. of swedes.

But perhaps the most important consideration in herd improvement is selective breeding. It is a well-worn saying that the bull is half the herd. But this may be even less than the truth, as a good prepotent milk record bull bred from high-yielding dam and grand dams may have greater effect in this connection than all the cows in the herd. Thus a good stock bull sufficiently fortified from the milk record standpoint is the first essential in herd improvement; a 900-1000 gallon standard should be insisted upon. The aim, obviously, should be to rear as many heifer calves as possible off the better milking cows in the herd.

We have merely outlined some of the measures that have in many instances resulted in substantial progress. But no matter how such methods may be varied in individual cases, it is obvious that systematic milk recording is a first essential in all such efforts. Without a reliable system of milk recording the herd owner is merely working in the dark, and very often at cross purposes. On the other hand, milk recording opens up the most direct paths towards herd improvement in the several directions indicated.

ANALYSES FOR MEMBERS DURING 1928.

By Dr J. F. TOCHER, Aberdeen, Analyst to the Society.

THE number of samples submitted for analysis during the year 1928 was 274, of which 40 were fertilisers, 56 were feeding-stuffs, 64 were milks, 50 were waters, 2 were soils, and 3 were silages. There were 28 examinations for poisons and 31 miscellaneous samples. The following table (Table I.) shows the number and nature of the samples analysed during the past six years :—

TABLE I.

	1928.	1927.	1926.	1925.	1924.	1923.
Fertilisers . . .	40	44	61	81	82	84
Feeding-stuffs . .	56	37	43	56	59	44
Waters . . .	50	26	26	51	35	37
Other samples . .	128	121	130	84	94	96
Total . . .	274	228	260	272	270	261

FERTILISERS.

General.—The fertilisers examined may be classified as follows :—

TABLE II.

Compound fertilisers	11
Potash fertilisers	1
Ground mineral phosphate . . .	2
Superphosphate	2
Slags	4
Sulphate of ammonia	1
Bone meals	3
Nitrate of chalk	1
Sulphate of ammonia and North African phosphate	1
Limes and limestones	14
	40

The average composition of compound fertilisers for 1928 was found to be 4·96 per cent nitrogen, 12·80 per cent soluble phosphate, 7·33 per cent insoluble phosphate, and 7·47 per cent potash. The nitrogen in the compound fertilisers ranged from 2·28 to 8·11 per cent. The variation in soluble phosphate was from 5·84 to 16·05 per cent. The proportion of insoluble phosphate varied from 1·29 to 20·70 per cent, while the proportion of potash varied from 1·25 to 12·32 per cent. The following table (Table III.) shows the composition of the compound fertilisers examined during the year :—

TABLE III.

	Nitrogen.	Soluble phosphate.	Insoluble phosphate.	Potash.
Hen manure	2·28	...	6·19	1·25
Potato manure	4·19	11·10	4·62	10·24
"	6·72	15·93	1·29	9·69
"	7·66	16·05	1·69	7·86
"	8·11	5·84	1·77	10·03
Compound manure . . .	4·12	11·66	5·94	12·32
" . . .	4·31	11·97	5·13	11·59
" . . .	2·98	15·47	11·58	4·43
" . . .	4·65	...	20·70	3·74
" . . .	2·87	14·85	11·72	4·05
" . . .	6·62	12·29	10·05	7·00

Three samples of lime sludge were examined and were found to contain about 65 per cent calcium carbonate. The samples, however, were not in a sowable condition. A sample of waste lime was analysed and was found to contain only 17 per cent calcium carbonate. As the sample was free from moisture, the waste product must be regarded as worthless as a fertiliser. A sample of calcium carbonate was guaranteed to contain 1½ per cent sulphate of ammonia. The proportion of sulphate of ammonia present was only ·15 per cent. The deficiency was due to the loss of ammonia through the action of calcium carbonate on the sulphate of ammonia. A sample of a fertiliser containing one part of sulphate of ammonia and nine parts of ground mineral phosphate was analysed in order to determine the loss, if any, in ammonia due to mixing with ground mineral phosphate. It was found that, on exposure to air for three weeks, there was a loss of 0·1 per cent due to the action of the alkaline lime in the ground mineral phosphate on the ammonia in the sulphate of ammonia. One of the samples of ground mineral phosphate analysed was guaranteed only for the percentage of phosphate. The attention of members is drawn to the fact that, not only must a guarantee be given for phosphoric acid in ground mineral phosphate, but also a guarantee for the fineness of grinding. It is not necessary for the seller or manufacturer to guarantee a ground mineral phosphate to have a degree of fineness of 80 per cent. What the seller must do is to state the amount of phosphate which passes through the prescribed sieve. It must be noted, however, that ground mineral phosphate, the degree of fineness of which is only 60 per cent, is a coarse powder, compared with a sample so finely ground that 80 per cent of the powder passes through the prescribed sieve.

FEEDING-STUFFS.

Fifty-six samples of feeding-stuffs were analysed during 1928, including the usual feed-cakes and such feeding-stuffs as dried grains, sugar-beet pulp, bean meal, and bone and meat meal. The following table (Table IV.) shows the results of analyses of feeding-stuffs :—

TABLE IV.

	Oil.	Albuminoids.	Soluble carbohydrates.	Fibre.	Ash.	Moisture.
Poultry Mixtures	5·40	17·63	51·54	7·10	5·11	13·22
″	3·53	16·44	...	4·79	...	...
″	3·82	12·75	...	6·04	...	...
″	5·10	12·75	...	3·84	...	..
″	3·95	15·12	50·33	9·80	9·30	11·50
″	2·80	10·50	59·81	5·54	11·55	9·80
″	3·38	13·44	...	3·04	...	...
″	3·45	11·19	...	1·80	...	...
″	3·36	9·56	...	5·72	...	...
″	1·51	9·81	...	4·07	..	...
″	4·00	18·25	...	6·19	...	...
Dried Grains . . .	8·85	20·50	46·53	14·96	3·42	5·74
″ . . .	7·23	19·50	49·93	14·17	3·56	5·61
Sugar Beet Pulp . . .	0·79	8·87	56·04	18·53	3·30	12·47
″ . . .	0·80	8·43	57·70	17·16	4·01	11·90
Oats and Oat Dust . .	4·60	9·25	51·58	19·90	4·77	9·63
″ . . .	4·76	9·25	57·56	9·46	2·42	16·55
″ . . .	5·52	10·50	...	9·55	...	...
″ . . .	...	...	...	20·10	...	...
Feeding Meal . . .	17·27	16·38	39·01	6·13	11·18	10·03
″ . . .	16·58	16·81	41·04	6·02	10·42	9·13
Makbar Meal . . .	1·70	6·94	50·18	7·33	8·85	25·00
Maize Meal	4·49	10·70	70·08	1·70	1·07	11·96
″	4·48	9·69	...	1·41	...	...
″	3·83	8·81	...	1·84	...	...
Pig Meal	3·78	14·88	...	4·58	...	...
″	3·14	11·13	...	7·28	...	...
Calf Meal	5·30	17·50	...	5·70	...	...
Bean Meal	1·25	21·56	...	6·02	...	...
″	1·34	21·94	..	6·42	...	...
″	1·37	21·56	53·49	8·17	3·60	11·81
Feedlet Meal . . .	5·33	14·06	44·41	12·07	13·80	10·33
Cotton-seed Meal . . .	7·14	39·37	...	...	...	...
″	7·00	41·81	...	...	...	...
Barley Screening Meal . .	5·20	13·63	56·42	6·30	8·90	9·55
Dutch Linseed Cake . .	8·29	29·37	37·10	7·01	5·41	12·82
Linseed Cake . . .	6·39	29·69	...	...	...	...
″ . . .	11·73	29·94	...	...	...	...
Malt Culms	0·76	25·81	45·98	11·88	5·64	9·93
Lambsfood	5·54	14·51	49·74	12·23	6·12	11·86
″	4·74	16·44	...	12·50	...	...
Ewe Food	4·17	15·31	47·52	15·98	5·41	12·61
Cattle Food	12·97	28·81	...	6·38	Sulphur 0·7 %	
Meal	16·22	28·06	...	5·17	″ 0·93 %	
″	10·69	29·06	32·61	5·78	10·25	11·42
					Sulphur 0·19 %	
″	7·30	11·50	46·67	9·96	13·14	10·60
					Sulphur 0·83 %	
Oats		Sulphur Dioxide 28 parts per million.				
Bone and Meat Meal . .	14·50	41·81	Phosphoric Acid 13·42 % = Tricalcium Phosphate 29·29 %			
Cotton Cake (Bombay) .	4·71	19·06	36·06	21·20	5·70	13·27
″ (Decorticated) .	9·72	31·68	...	...	...	...
Compound Dairy Cake .	8·84	15·05	45·47	12·00	7·92	10·72
Dairy Mixture . . .	9·28	20·25	...	9·70	...	...
″	4·67	21·31	11·55	45·90	5·70	10·87
Earth Nut Cake (Expeller) .	6·31	47·50	...	9·72	...	...
Cake	9·70	29·19	23·74	25·66	4·33	7·38
″	9·39	28·50	...	25·20	...	...

A sample of Dutch linseed cake was found on analysis to contain 4·1 per cent of sugar. In addition to rendering the linseed cake more palatable, sugar is of value on account of the fact that it is a readily assimilable carbohydrate and proves useful as a heat producer, and is probably valuable otherwise in milk production. Certain proprietary feeding-stuffs were found to consist mainly of whole linseed and cereals, together with a small proportion of mineral matter. The price of one of the proprietary feeding-stuffs, which was coloured with a vegetable dye, was 58s. per cwt., equal to £58 per ton, compared with whole linseed cake which can be bought at £19 per ton. A sample of decorticated cotton cake was guaranteed to contain 11 per cent of oil and 39 per cent of albuminoids. It was found, on analysis, to contain only 9·7 per cent of oil and 31·7 per cent of albuminoids. This sample was sent in before the 1st July, the date on which the Fertilisers and Feeding-Stuffs Act, 1926, came into force. It was therefore unnecessary to guarantee the percentage of fibre. Had the sample been sent in after the 1st July, the proportion of fibre would have had to be guaranteed. The deficiencies in oil and albuminoids were 1·3 per cent and 7·3 per cent respectively. The buyer was therefore entitled to a reduction of 7s. per ton on the consignment, due to these deficiencies. A sample of earth nut cake was supposed to contain a small proportion of castor seed. A large sample of the consignment was examined for the presence of castor seed, with entirely negative results. The actual presence of castor seed in any feeding-stuff is sufficient to condemn the consignment. irrespective of the smallness of the proportion found to be present. Four mixed feeding meals were examined and found to contain 0·9, 0·2, 0·8, and 0·7 per cent of sulphur respectively. Sulphur is present in the combined form in constituents of feeding-stuffs. The chief sulphur compounds present are sulphates and certain organic substances known as amino-acids. No free sulphur—or, as the public understand the term, ‘flowers of sulphur’—is present in any feeding-stuff, and there is no scientific evidence of free sulphur being of any value as an ingredient of a ration for live stock.

Milks.—It will be seen from the following table (Table V.) that of the 64 samples of milk examined during the year, 9 were found to be below the presumptive limit of 3 per cent butter fat prescribed by the Department of Agriculture, 12 were below the presumptive limit of 8·5 per cent solids not fat, while 3 were below these limits in both constituents:—

TABLE V.

No.	Fat, per cent.	Solids not fat, per cent.
1	3·75	8·63
2	3·10	8·78
3	3·54	8·64
4	3·10	8·56
5	3·70	8·58
6	4·42	9·74
7	3·90	8·89
8	3·60	8·74
9	4·55	9·48
10	4·52	7·04
11	5·72	7·20
12	3·00	8·51
13	3·17	8·30
14	3·25	8·35
15	4·05	8·54
16	4·88	7·03
17	3·35	8·76
18	3·15	8·56
19	3·70	8·29
20	3·95	8·65
21	3·60	8·26
22	2·90	8·35
23	3·30	8·40
24	3·45	8·71
25	3·53	8·81
26	3·60	9·05
27	3·60	9·06
28	3·75	8·86
29	3·60	8·70
30	2·75	8·77
31	3·10	8·75
32	2·70	8·21
33	3·25	8·42
34	6·15	7·88
35	2·35	8·98
36	2·70	6·38
37	4·90	8·41
38	3·70	9·02
39	3·20	8·50
40	4·40	8·58
41	3·10	8·79
42	4·15	8·52
43	2·65	8·57
44	3·50	8·39
45	5·20	8·71
46	2·50	8·93
47	6·45	8·83
48	3·05	9·02
49	4·25	8·78
50	4·05	9·49
51	6·75	8·70
52	3·02	—
53	3·65	—
54	3·80	—
55	3·00	—
56	4·10	—
57	2·70	—
58	1·85	—
59	1·30	—
60	4·40	—
61	1·30	—
62	2·95	—
63	3·40	—
64	4·05	—

The proportion of butter fat in the 64 samples varied from 1·30 to 6·75 per cent, the average being 3·63 per cent. The proportion of solids not fat varied from 6·38 to 9·74 per cent, the average being 8·55 per cent. The following table (Table VI.) shows the nature of the distributions of butter fat and solids not fat in these samples:—

TABLE VI.

Butter fat, percentage.	Frequency.	Solids not fat, percentage.	Frequency.
1 to 2	3	6 to 6·5	1
2 to 3	9	6·5 to 7	0
3 to 4	34	7 to 7·5	3
4 to 5	13	7·5 to 8	1
5 to 6	2	8 to 8·5	10
6 to 7	3	8·5 to 9	29
		9 to 9·5	6
		9·5 to 10	1
	64		51

It will be seen that 3 of the samples contained between 1 and 2 per cent of butter fat, while 9 of the samples contained between 2 and 3 per cent. It will also be seen that 1 sample contained less than 6·5 per cent of solids not fat, while 3 samples contained between 7 and 7·5 per cent. These samples can hardly be regarded as samples of genuine milk. I propose to publish elsewhere, at an early date, a monograph dealing with the watering of milk, and with a method of estimating the probability of a milk containing added water.

Waters.—Fifty samples of water were analysed during the year, of which 33 were found to be suitable for domestic use. One of the rejected samples was a sample of sufficiently good quality as a water supply for sheep. Sedimentation and filtration were recommended to improve the supply in a few cases where the proportion of organic matter in solution was high. A sample of water stated to possess medicinal properties was found to be an ordinary soft spring water devoid of both sulphur and iron. A sample from a hot-water supply, which had caused discoloration of sponges, was found to contain an appreciable quantity of copper in solution.

Examinations for Poisons.—Arsenic, lead, and caustic lime were found to be present in sufficient quantity to cause death of live stock in a number of cases. In the month of February a large number of stomach contents and internal organs of thirty-one cattle from one farm were sent in for analysis. Arsenic was found in abundance in all the specimens, and was in more than sufficient quantity to cause the deaths of the animals. A sample of whole cake nuts and broken-down cake nuts was sent in from the same source, and was found to contain arsenic. The member made a claim against the firm which supplied the cake nuts, attributing the presence of arsenic in the feeding-stuff to carelessness on the part of the firm's employees. The case is at present before the High Court.

Fertilisers and Feeding-Stuffs Act, 1926.—Members are doubtless aware that the Fertilisers and Feeding-Stuffs Act, 1926, came into operation on the 1st July 1928. In two previous reports I gave summaries of the provisions of the Act, and explained the nature of the changes in administration brought about by the new Act.

THE CEREAL AND OTHER CROPS OF SCOTLAND FOR 1928.

The following comparison of the cereal and other crops of 1928 with those of the previous year has been prepared by the Secretary of the Society from answers to queries sent to leading agriculturists in different parts of the country.

The queries issued by the Secretary were in the following terms:—

1. What was the quantity, per imperial acre, and quality of grain and straw, as compared with last year, of the following crops? The quantity of each crop to be stated in bushels. What quantity of seed is generally sown per acre?—(1) Wheat, (2) Barley, (3) Oats.
2. Did the harvest begin at the usual time, or did it begin before or after the usual time? and if so, how long?
3. What was the quantity, per imperial acre, and quality of the hay crop, as compared with last year, both as regards ryegrass and clover respectively? The quantity to be stated in tons and cwts.
4. Was the meadow hay crop more or less productive than last year?
5. What was the yield of the potato crop, per imperial acre, as compared with last year? The quantity to be stated in tons and cwts. Was there any disease? and if so, to what extent, and when did it commence? Were any new varieties planted, and with what result?
6. What was the weight of the turnip crop, per imperial acre, and the quality, as compared with last year? The weight of the turnip crop to be stated in tons and cwts. How did the crop braird? Was more than one sowing required? and why?
7. Were the crops injured by insects? State the kinds of insects. Was the damage greater or less than usual?
8. Were the crops injured by weeds? State the kinds of weeds. Was the damage greater or less than usual?
9. Were the pastures during the season of average growth and quality with last year?
10. How did stock thrive on them?
11. Have cattle and sheep been free from disease?
12. What was the quality of the clip of wool, and was it over or under the average?

From the answers received, the following notes and statistics have been compiled:—

EDINBURGH DISTRICT.

MID-LOTHIAN. *Wheat*—48 bushels per acre; good crop and nice quality; straw close on 40 cwt. per acre; 4 bushels per acre sown. *Barley*—44 to 50 bushels per acre; about 1 ton per acre of straw; rather a disappointing yield according to appearance, and grain not the nice colour one would expect; 3 to 4 bushels per acre sown. *Oats*—60 bushels per acre, quite an average crop; would yield more on highly farmed land; quality fairly good and of a nice sample; straw nearly 30 cwt. per acre; 4 to 6 bushels per acre sown. *Harvest*—Began earlier than last year. *Hay*—Close on 60 cwt. per acre; of good quality, much better than previous year. *Meadow Hay*—Not much grown. *Potatoes*—10 tons per acre; a better crop than last year and free from disease; keeping well in pits; varieties planted much as usual. *Turnips*—20 tons per acre; quality good, but finished up disappointingly as regards weight per acre; a fairly good braird, and not much resowing. *Insects*—There seemed to be little damage from insects. *Weeds*—No damage to any extent. *Pastures*—Quite an average in growth and quality. *Live Stock*—Throve quite well. Cattle and sheep free from disease. *Clip of Wool*—Quite an average.

WEST LOTHIAN. *Wheat*—64 bushels per acre; straw and grain good; seed sown, 4 bushels per acre. *Barley*—45 to 50 bushels per acre; straw and grain good; seed sown, 4 to 5 bushels per acre. *Oats*—50 to 56 bushels per acre; straw and grain good; seed sown, 6 bushels per acre. *Harvest*—From one to two weeks later than usual. *Hay*—45 to 55 cwts. per acre; well got, and of good quality. *Meadow Hay*—Very little grown. *Potatoes*—Earlies from 4 to 5 tons per acre; lates from 7 to 10 tons per acre; good quality; very little disease. *Turnips*—A good crop; say, 20 to 25 tons per acre; a good quick braird; no resowing. *Insects*—Slight damage to oats on lea by grub (leather-jacket). *Weeds*—A fairly good summer for killing weeds. *Pastures*—Average growth and quality. *Live Stock* throve well. Cattle and sheep free from disease. *Clip of Wool*—Average clip, of good quality.

EAST LOTHIAN (Upper District). *Wheat*—46 bushels per acre; 32 cwt. straw per acre; not so good as last year in quantity, but quality better; seed sown, 4 bushels per acre, drilled. *Barley*—48 bushels per acre; 24 cwt. straw per acre; about an average quantity; seed sown, 4 bushels per acre, drilled. *Oats*—60 bushels per acre; 25 cwt. straw; quantity less, but quality better; seed sown, 6 bushels per acre, drilled. *Harvest*—Began about a week earlier than last year—nearer the usual time. *Hay*—50 cwt. per acre; the best quality for many years; exceptional weather for harvesting. *Meadow Hay*—None grown. *Potatoes*—Crop varied very much, but the average yield would be better than last year; about 8½ tons per acre; no disease; no new varieties sown. *Turnips*—Crop on the whole was better than last year; yield from 18 to 20 tons per acre; brairded well—no resowing. *Insects*—No damage. *Weeds*—No loss through weeds. *Pastures*—Full average quality—better than last year. *Live Stock*—All stock did well on pastures. The only disease among cattle and sheep was anthrax, causing some loss on about a dozen farms. *Clip of Wool*—Just about an average clip in weight, and of first-class quality.

EAST LOTHIAN (Lower District). The weather in the beginning of the season was abnormal, and adversely affected growth in spring and early summer. May was dry and hard, while June was wet and cold. Consequently cereals made a bad start. Root crops suffered less, although swedes and sugar beet made slow growth at first, and in the wet weather of June weeds among fallow crops got a considerable hold. Later the weather became much more favourable, and a good autumn enabled swedes and potatoes to grow into good crops. Potatoes finished up a first-class crop, but sugar beet failed to make up what was lost in the beginning of the season, and lifted considerably short of expectation.

Wheat—A moderate crop, 40 to 48 bushels per acre; a good harvest made the most of both grain and straw, and improved expectations; seed, 3 to 3½ bushels per acre drilled, up to 4 bushels when broadcasted. *Barley*—Yielded 40 to 50 bushels per acre, although in some cases up to 64 bushels were obtained. The inherent quality of the grain was a little below the usual high average of this district, but the crop was well got at harvest, and consequently was mostly presentable for malting purposes. Seed sown, 3 to 3½ bushels per acre, and in exceptional cases 4 bushels. *Oats*—Were quite an average crop, and both straw and grain were of good quality. The varieties grown were mostly "thick skinned" of the grain-producing type, Victory being first favourite. Yields of 70 to 90 bushels per acre were quite common. Seeding, 5½ to 6 bushels per acre, and double sowing is frequently practised. Potato oats are not much grown in the lower district of the county, owing to their poorer standing power and lower yield of grain. *Harvest*—Was mostly in September, and would be a fortnight later than usual. A brief spell of favourable weather towards the end of the month made harvest successful and easy work compared with the previous year. *Hay*—The quantity of ryegrass and clover hay was about an average of 2½ to 3 tons per acre, although in some cases more was obtained. The quality was excellent—the best for a number of years. *Meadow Hay*—Little or no meadow hay is grown in this district. *Potatoes*—The yield of potatoes would be 40 to 50 per cent better than the previous year, which was a very bad one. Crops of 8 to 10 tons per acre were quite common. There was little or no disease, and the tubers were sound and of good quality. A few new varieties are always being tried by progressive growers, but nothing startling came to light this year. A few grow Marconi, and were glad to get rid of it. Arran Banner was tried, but is still too limited for field culture on a larger scale. *Turnips*—Practically nothing but swedes are grown, and the yield generally would vary from 23 to 26 tons per acre. They brairded tardily, owing to drought in May, and grew slowly in June, but little or no second sowing was necessary. *Insects*—Little damage done by insects; probably less than usual. *Weeds*—The chief weeds are charlock and other annual weeds. These got a good hold in June owing to wet weather, and were more expensive to eradicate than usual. *Pastures*—The pastures were good except for a dry spell after hay cutting, so that aftermath came very slowly, and was late in being available for lambs. *Live Stock*—Did moderately well. Cattle and sheep have been free from disease. *Clip of Wool*—About an average.

BORDER DISTRICT.

BERWICKSHIRE (Merse). *Wheat*—Owing to the late harvest in 1927, followed by a wet autumn, the acreage of wheat sown was very much reduced, practically 1000 acres out of last year's total of 2700; seed sown, 3 bushels drilled, or 4 bushels broadcast; natural weight 63 lb., yield from 35 to 45 bushels per acre, of good quality; the crop was fairly heavy, but standing; easily harvested; straw 30 cwt. per acre. *Barley*—A reduction of some 500 acres on the previous year; generally a useful crop before cutting; not too seriously laid; seeding 2½ to 3 bushels per acre; thrashing results were good as regards quantity and weight, but many samples lack quality; yield 34 to 40 bushels per acre, weighing 56 lb. per bushel: harvest generally was good, with little, if any, damage, except for an isolated field or two; 25 cwt. straw per acre. *Oats*—Some 900 acres less than was sown in 1927; brairded irregularly, and was cut with many green leaves through it; mostly harvested in very good condition; seeding from 4 to 6 bushels, depending on variety, and now usually ribbed in; some fields were more or less laid, but the bulk generally was easily handled; thrashings show the yield to be well above average, 40 to 50 bushels per acre, with many fields exceeding that; natural weight above the standard by 1 lb. —*i.e.*, 43; showing good quality; 27 cwt. straw per acre; of good quality for fodder. *Harvest*—Very good harvest generally; rather later in commencing, but quickly handled, with a minimum of re-stooking, &c.; some few fields cut by the middle of October, but when the weather broke the fields stood for a long time and were badly spoilt before crops could be secured. *Hay*—Quality almost in every instance was exceptionally good, much being handled without getting a shower; unfortunately it was a very light crop, and will be in very short compass before grass time; 25 to 30 cwt. per acre. *Meadow Hay*—A good crop, but suffered somewhat on account of a break in the weather; 23 to 26 cwt. per acre. *Potatoes*—Total acreage 2464, fully 100 acres less than 1927; a good crop of well-grown clean tubers; yield from 7 to 8 tons per acre, with little or no disease; no new varieties sown. *Turnips*—Braird came away very nicely; no resowing; growth was slow until after singling, when they did very well; finger-and-toe threatened to be serious at one time, but apparently did not develop, as the crop, taken all over, was a large one; quality very sound; Yellows yielded from 15 to 18 tons per acre; swedes 20 tons and over. *Insects*—None. *Weeds*—Runches less then usual. *Pastures*—Were short of growth and often very bare; turnips were short in spring, which necessitated stocking of pastures too early, when these were often closely cropped; quality was good, but at no time was there much to come and go on. *Live Stock*—Sheep did fairly well; the lambs at the earlier sales were short of condition; cattle did not thrive so well as usual. Cattle and sheep free from disease, except in the lambing fields, where mortality was heavy, due chiefly to garget and joint-ill. *Clip of Wool*—Quality good, but weight rather under average.

BERWICKSHIRE (Lammermoor). *Wheat*—Practically none grown. *Barley*—Average crop; on the whole of good quality; not nearly so much laid and twisted as last year; yield about 4 qrs. per acre. *Oats*—Full average crop, except on cold wet land, where crop ripened very slowly, and was in many cases cut in a green state; average yield would be about 5 qrs. per acre; straw was of much better quality than last year. *Harvest*—Was again late, fully a fortnight behind usual time; weather fair until towards the end of harvest, when it broke down badly. *Hay*—Quantity below the average, just under 2 tons; quality good, much better than last year. *Meadow Hay*—Also below average, but quality better. *Potatoes*—Quite an average crop of good quality; practically no disease. *Turnips*—In almost all cases crops were above the average; seed brairded well, and very little resowing required. *Insects*—Little damage by insects. *Weeds*—Damage by weeds less than last year. *Pastures*—Growth not being so rank, quality better than last year. *Live Stock*—Did well on pastures; better than last year. Cattle and sheep fairly free from disease. *Clip of Wool*—Average.

ROXBURGHSHIRE. *Wheat*—A fair amount grown; some sown after wild white clover; yield 6 to 10 bags per acre; 3½ to 4 bushels per acre sown. *Barley*—A moderate crop, mostly standing; not so much straw as last year; yield 7 to 9 bags per acre; 2½ to 3 bushels per acre sown. *Oats*—The crop of the season; in some of the earlier districts extraordinary yields were obtained; in other districts the crop was very late in ripening, and where this was the case the yield was very much less and a great deal of it of poor quality; seed sown, 4 to 6 bushels per acre. *Harvest*—Began in the beginning of September and finished in the middle of December according to circumstances. *Hay*—The hay on good land was a good crop, and of very fine quality. *Meadow Hay*—Was about the same in quantity as last year, but a lot of it was of only moderate quality. *Potatoes*—Average crop about 8 tons per acre; good quality; no disease worth mentioning. *Turnips*—Were a very equal crop; luxuriant shaws, but the roots a little disappointing, especially where grown after wild white clover; the crop brairded well; little resowing necessary. *Insects*—No damage to speak of. *Weeds*—Crops not injured to any great extent. *Pastures*—A good growth of grass of good quality, especially where manured and where topped by the reaper in the month of July. *Live Stock*—Throve well, despite a cold June, which temporarily checked them. A certain amount of anthrax; not so much udder disease in ewes as last year; several cases of scab, traceable to sheep coming into the the district from the north. *Clip of Wool*—Good quality, and quite up to an average clip.

SELKIRKSHIRE. *Wheat*—None grown. *Barley*—34 bushels per acre; seed sown, 3½ bushels per acre. *Oats*—40 bushels per acre from two-fifths of acreage, 24 bushels from remainder; the cause of the latter yield was the late and very bad harvest. Oats in this county ripened very unequally; those that did ripen were quite three weeks late; the larger proportion, however, never ripened properly. *Harvest*—Poor, finished in November. *Hay*—2½ tons;

practically all secured in excellent order. *Meadow Hay*—A full average crop, much wasted by wet weather; good class hay dear and difficult to get. *Potatoes*—Only a small acreage is grown for market; the late wet season left much to be desired in quality; much depends on how they leave the pits. *Turnips*—The turnip crop was late, and not likely to stand so much eating as usual, but the open winter so far will overcome the deficiency. *Insects*—No damage. *Weeds*—Damage by weeds greater than usual; chickweed and all the usual weeds were prevalent; difficult to get any cleaning done owing to the wet weather. *Pastures*—There was no scarcity of grass; owing to the open winter grass was very forward, and thus ready before it was required for ewes and lambs; the excessive rainfall did not improve the quality. *Live Stock*—Required extra feeding. Cattle and sheep free from disease. *Clip of Wool*—Average clip of good quality.

DUMFRIES DISTRICT.

DUMFRIES (Annandale). *Wheat*—None grown. *Barley*—Acreage grown very small; any sown is only used for feeding purposes. *Oats*—Owing to very wet weather in March, sowing was not general until 5th April, fully ten days later than the average. It was frequently interrupted by broken weather, and was not completed till the end of the month. Good weather during May ensured a strong healthy braird. Mild wet conditions followed in June and July, and crops everywhere gave promise of being very good, especially the lea break; unfortunately lea oats were nearly all laid and twisted in August by heavy rains. Yield: grain 34 bushels per acre; straw 32 cwt. per acre; seed sown, 4 to 6 bushels per acre according to variety. *Harvest* started about 18th August, and all the laid crops were gathered in very much better condition than could have been hoped for, the ingathering of the whole crop being practically finished by 28th September. *Hay*—Ryegrass was much below the average in bulk, but quality was superior to that of previous year. The want of sun did not favour the growth of clover, and little of this plant was seen. Yield, 25 cwt. per acre. *Meadow Hay*—Bulk below last year, but quality very much better. Yield, about 25 cwt. per acre. *Potatoes*—A very good crop all over, and much better than the average; yield about 7 tons per acre; the season, although wet and sunless, did not seem to have any bad effect on the crop, and very little disease was seen. *Turnips*—Well above average as to bulk, and all over a sound healthy crop. Very little second sowing had to be resorted to, conditions at that time being very favourable. The plants came away strong and vigorous, and weeds were more easily kept in check than last year. *Insects*—Very little damage from insects. Turnip-fly present, but not troublesome; grub did very little damage to the oat crop. *Weeds* were not unusually prevalent, and the expense or loss in this respect was not great. *Pastures*—More than average growth, but stock did not seem to thrive as well as expected, and were consequently longer in getting ready for the fat market. *Live Stock* of all kinds were free from disease. *Clip of Wool*—Rather over average, both as regards quality and quantity.

DUMFRIES (Nithsdale). *Wheat*—None grown. *Barley*—None grown. *Oats*—Ripened about the middle of September; a very good crop; but lea oats badly laid in places. Where harvest was late, a very good crop; average yield of grain. *Harvest*—Began a little later than usual. *Hay*—A lighter crop, a quarter less than last year, and not got so well. *Meadow Hay*—About a quarter less than last year. *Potatoes*—A fair good crop, about 6 tons per acre; free from disease. *Turnips*—A good crop; brairded well, but some frost rather spoilt it; no resowing. *Insects*—None. *Weeds*—Not so plentiful considering the fairly wet summer. *Pastures*—Not as good as last year; grass never seemed to get right away, probably owing to the frost in spring. *Live Stock*—Throve fairly well. Cattle and sheep free from disease. *Clip of Wool*—A good average clip.

KIRKCUDBRIGHTSHIRE. *Wheat* — None grown. *Barley* — None grown. *Oats*—Generally a heavy crop, particularly on lea, but was much laid, harvesting being difficult. Excellent corn well filled, of heavy weight, and in the main well secured; yield considerably over average. *Harvest*—A full fortnight later than usual. *Hay*—Rotation hay a fair crop, slightly under average; about 32 cwt. per acre; secured in good condition. *Meadow Hay*—A heavy crop; equal to last year; bad weather for making, and not secured in too good a condition. *Potatoes*—The yield of early varieties was much under last year. Some crops suffered from frost in June, but even the yield of those which escaped was below the average, being only about 7 tons; late varieties, a fine well-grown crop considerably over average; yield about 9 tons per acre, and not infrequently reaching up to 11 to 12 tons; some disease, but not to any disastrous extent; pits appear to be keeping quite well; not an appreciable increase in new varieties; immunes largely planted to serve the English seed demand. *Turnips*—A good sound crop, but not by any means a heavy yield; probably 16 tons per acre; crop brairded well, and there was little resowing; season throughout was wet and cold, and roots were slow to develop. *Insects*—None. *Weeds*—Annual weeds in plenty, owing to persistent wet weather, but were well smothered by abundant crops. *Pastures*—Excellent, and over average. *Live Stock* throve well. Cattle and sheep free from disease.

WIGTOWNSHIRE. *Wheat*—Very little grown. *Barley*—Very little grown. *Oats*—40 bushels per acre; quality good; straw not so heavy as last year; crop was well harvested; oats after green crop were light; 36 bushels per acre; seeding—Potato oats 6 bushels per acre by hand, 4½ bushels per acre where drilled; Victory oats 7 to 8 bushels per acre. *Harvest* in general began during first and second weeks of September; early farms had good harvest, but late farms finished badly in October. *Hay*—Ryegrass hay crop light, but well got; 28 cwt. per acre; meadow and lea hay a poor crop; 22 cwt. per acre. A considerable part of the latter crop was eaten too long by stock in spring, and the weather was unfavourable for getting it well. *Meadow Hay*—Less than last year. *Potatoes*—At commencement of digging, early potatoes were a small crop, but increased in weight later; 3 tons per acre at start of digging, 8 tons per acre later; all earlier Epicure variety; average crop of late potatoes, 6 tons per acre. *Turnips*—A large proportion of the turnip crop in Rhins district had to be resown owing to the braird being destroyed by fly and frost; more finger-and-toe and dry-rot than usual; weight 14 tons per acre. In Machars district turnips brairded well, and were much better than those grown in the Rhins district. *Insects*—Turnip braird destroyed by turnip-fly in Rhins district; very little damage done by grub. *Weeds*—Owing to continual wet weather, it was difficult to keep turnip crop clean from annual weeds. *Pastures*—Growth similar to last year. *Live Stock* throve quite well. Cattle free of disease. Lambs did not suffer so badly with dysentery as formerly. A large number were given powders, and others inoculated, in both cases with good results. *Clip of Wool*—Hill sheep clip under average weight, and quality not quite so good; low ground sheep clip average weight and quality.

GLASGOW DISTRICT.

AYRSHIRE. *Wheat*—48 bushels per acre; 60 lb. per bushel; straw 32 cwt. per acre; seed sown, 3¾ bushels per acre. *Barley*—36 bushels per acre; 54 lb. per bushel; straw 26 cwt. per acre; seed sown, 4 bushels per acre. *Oats*—51 bushels per acre; 39 lb. per bushel; straw 30 cwt. per acre; seed sown, 5½ to 7 bushels per acre. *Harvest*—Began about 20th August, and in early districts was completed by the end of September, but in later districts was not finished until the end of October. Cereals were generally a good crop, but of variable quality; straw unusually abundant. *Hay*, cut green, would average from 32 to 35 cwt. per acre, and the quality varied according to weather conditions at the time it was cut. *Meadow Hay*—A good crop, ranging from 46 to 50 cwt. per acre, was secured in better condition than ryegrass. *Potatoes*—Would average about 8½ tons per acre of exceptionally good quality, practically free from blight. The loss from this cause was much less than that experienced for a number of years. *Turnips*—21 to 22 tons per acre of fair quality. On account of a dry spell in May the braird was irregular, and many plots had to be resown. The crop was later in coming away than usual, but the mild and moist weather during the autumn kept the crop growing, and finished a good crop of moderately sound roots. *Insects*—Nothing unusual to report. *Weeds*—The usual annual weeds are always with us, but they were not more prevalent than in an average season; the weather was more favourable for dealing with them than in some previous years. *Pastures*—Grass was slow to come away in spring, but improved as the season advanced, and kept growing till late in the autumn. *Live Stock*—Throve well on the whole. Cattle and sheep practically free from disease, except for one or two outbreaks of sheep scab. *Clip of Wool*—Fully up to the average in both weight and quality.

BUTE. *Wheat*—None grown. *Barley*—None grown. *Oats*—A good crop, but again badly laid by a wet season. Although more cut this year with binder than last year, a great deal had to be cut with the reaper. A very wet season has been experienced in this island, but fortunately a spell of good weather set in for harvest. Grain very well got; 5 to 6 bushels per acre sown. *Harvest*—Although a little later in getting started, was not so long this year;

began first week in September, and finished about the 5th October. A few farms in the later districts, however, did not get finished until three weeks later. *Hay*—Crop light this year; quality poor in most cases. Those who cut early had the best quality; still a scarcity of clover; quantity 1 ton to 1½ tons per acre. *Meadow Hay*—Not much grown; a fair crop, but very badly got. *Potatoes* did well, especially Epicures; started digging early varieties 13th June, ten days earlier than last year; weight 6 to 7 tons per acre. Late potatoes (mostly Kerr's Pink) a good average crop, 8 tons per acre; very little disease. An experiment in spraying was tried for the first time and considered quite satisfactory. Too little was done, however, to give a definite pronouncement on it. It is likely to be undertaken more extensively next year. Herald, a new early, was grown, and gave a fair return. *Turnips*—Crop better and more regular this year; crop 20 to 25 tons per acre; brairded well but slow; very little resowing. *Insects*—No damage. *Weeds*—Turnip crop kept back very much by weeds. The damage was much the same as last year, both years being too wet to kill weeds effectively. *Pastures*—Under average; too much rain and too little sun this summer. The weather was against pastures more than any other crop. *Live Stock* seemed to thrive fairly well. No special disease among either cattle or sheep. *Clip of Wool*—An average clip.

ARRAN. *Wheat*—None grown. *Barley*—None grown. *Oats*—Good crop and all well secured; 4 to 5 bushels of seed sown; yield from 5 to 6 qrs. per acre; average weight per bushel about 42 lb. *Harvest*—Commenced about two weeks later. *Hay*—About 28 cwt. per acre, and in some exceptionally good parts a crop of 2½ tons was secured. *Meadow Hay*—About the usual crop. *Potatoes*—An exceptionally good crop; the yield would average about 7 tons per acre; very little disease. Of the newer varieties as high a yield as 20 tons per acre was raised. Arran Banner promises well, and seems to have a great future. Arran Crest, another new early variety, promises to fill a long-felt want, being the first to be immune for earlies. *Turnips*—Crop rather variable, but in the best districts heavy crops were lifted; 20 to 25 tons per acre; crop brairded well generally; no resowing required. *Insects*—Little damage done by insects; vermin, such as wood-pigeons and rabbits, do all the damage. *Weeds*—Weather being favourable, weeds were kept well in hand. *Pastures* were of average growth. *Live Stock* made good progress. Disease little known among cattle and sheep. *Clip of Wool*—Quite about the average; prices good.

LANARKSHIRE (Upper Ward). *Wheat*—Only small quantities grown. *Barley*—Only small quantities grown. *Oats*—Yield 40 to 60 bushels per acre; Lea oats a good crop—sown out not so bulky. *Harvest*—Began beginning of September—a little later than usual; very good weather for three weeks, and crop got in in extra good order; weather broke afterwards, and hutches could be seen standing out to the new year. *Hay*—30 to 50 cwt.; good quality—moderately got at the start, but well got middle of hay-time; the finish, however, was very bad, hay standing for weeks in the coil, and badly wasted. *Meadow Hay*—Fair crop, and fairly well got, except at the finish. *Potatoes*—Yield 8 to 10 tons per acre; a few crops perhaps yielded more; good crop; not much disease. *Turnips*—25 to 35 tons per acre; good quality and good crop; some resowing owing to frost; crop brairded well. There were a few shot turnips at lifting time. *Insects*—No injury. *Weeds*—Plentiful, and difficult to keep down owing to wet weather *Pastures*—Were of average growth and quality. *Live Stock*—Too wet and cold for most kinds of stock, although they did fairly well. Cattle and sheep free from disease, except for a slight outbreak of scab at end of year. *Clip of Wool*—Average clip and good quality.

LANARKSHIRE (Middle Ward). *Wheat*—30 to 40 bushels per acre; straw 30 to 40 cwt. per acre; seed sown, 4¼ bushels per acre; quality of grain partly inferior, partly good; straw plentiful. *Barley*—None grown. *Oats*—40 to 60 bushels per acre; straw 30 to 40 cwt. per acre; seed sown, 6 to 7 bushels per acre. *Harvest*—A little later than usual; some damage caused in the later districts through adverse weather conditions. *Hay*—A medium crop, 25 to 50 cwt. per acre. *Meadow Hay*—Heavy crop, 30 to 60 cwt. per acre. *Potatoes*—An inferior crop with a little disease; prices ranged from £2 to £4, 10s. per ton; the weight varied from 6 to 10 tons per acre. *Turnips*—Medium crop; a good deal of finger-and-toe disease; yield 10 to 25 tons per acre. *Insects*—No damage by fly, but much damage by soft-rot in turnip. *Weeds*—Owing to weather conditions the cleaning of the green crop land was much delayed, especially on the heavier lands. *Pastures*—Good return except on the stiffest lands. *Live Stock* throve well. Cattle and sheep free from disease.

LANARKSHIRE (Lower Ward). *Wheat*—35 to 40 bushels per acre; quality good, and better than last year; straw also good, but too much clover in bottom of crop; seed sown, 3½ bushels per acre. *Barley*—None grown. *Oats*—20 to 25 cwt. per acre; straw good and well got; seed sown, 5 to 6 bushels per acre according to variety. *Harvest*—First week September, two weeks later than last year. *Hay*—First cut ryegrass and clover a light crop; 30 to 35 cwt. per acre; Timothy 40 to 50 cwt. per acre. All crops well got, and very good fodder. *Meadow Hay*—None grown. *Potatoes*—Mostly main crops of Kerr's Pink and Golden Wonder varieties; yield of Kerr's Pink 8 to 9 tons, and Golden Wonders 6 tons. Practically no disease; few soft potatoes in pits. *Turnips*—Good sound crop; yield 20 to 25 tons per acre; brairded well. *Insects*—None. *Weeds*—Not more than usual. *Pastures*—Similar to last year. *Live Stock* throve well until late autumn. Cattle and sheep free from disease. *Clip of Wool*—Average (few sheep kept); sheep and lambs on foggage have left money.

RENFREWSHIRE. *Wheat*—Much the same as last year; about 20 cwt. per acre grain and 25 cwt. per acre straw. The quality of both grains and straw was very good; seed sown, about 3½ bushels per acre. *Barley*—Very little grown in the county. *Oats*—About 22 cwt. per acre of grain and 23 cwt. per acre of straw, and quality of both very good. Seed sown, about 6 bushels per acre. *Harvest*, which commenced about the usual time—early in September—was, on account of the exceptionally favourable weather, a rapid and easy one. *Hay*—Slightly under average, about 38 cwt. per acre; secured in first-class order, and quality very good. *Meadow Hay*—Very little now grown in the county. *Potatoes*—About 8 tons per acre, an increase of about 2 tons per acre over last year; quality fairly good, although some disease in second early varieties. *Turnips* —Crop about an average; on the whole, crop brairded satisfactorily, and in few cases was second sowing required. *Insects*—Very little injury by insects. *Weeds*—No very noticeable damage. *Pastures*—Very slow to come away, and less than average growth. *Live Stock* —Throve fairly well on the whole, and were free from disease. *Clip of Wool*—An average clip in both quantity and quality.

ARGYLLSHIRE (Lochgilphead). *Wheat*—None grown. *Barley*—None grown. *Oats*—Lea oats were a very good crop, and those on sown down land were also better than last year; lea straw about 22 cwt. and grain 6½ bolls; red land 1 ton straw and 6 bolls grain. *Harvest*—Began about 1st September, and was not so prolonged as in some previous years. *Hay*—Ryegrass hay was a light crop owing to dry frosty May weather; badly secured, and quantity not more than 1 ton per acre, and in many cases even less. *Meadow Hay*—Much about last year's crop; quality quite good. *Potatoes*—Heavier yield than last year, 7 to 8 tons per acre; not much disease. *Turnips*—Crop was better than last year; yield about 20 tons per acre; crop slow in brairding; there was a little resowing owing to dry weather and frost in May. *Insects*—Not to any extent; a little damage from grub to lea oats. *Weeds*—Turnip crop difficult to clean owing to wet June and July. *Pastures*—Less luxuriant than usual, but quite good quality. *Live Stock*—Cattle throve very well, but were late in developing, as pasture was very bare at beginning of the season. Cattle free from disease; a good deal of fluke in sheep. *Clip of Wool*—Very good, about the average weight.

ARGYLLSHIRE (Islands of Islay, Jura, and Colonsay). *Wheat*—None. *Barley*—38 bushels per acre; only about 12 acres sown. *Oats*—38 bushels per acre; average weight of grain; stacks threshed well and grain firm. *Harvest*—Began beginning of September, about the usual time. *Hay*—36 cwt. per acre; crop not so good as last year. *Meadow Hay*—A little less productive than last year. *Potatoes*—Good average crop; about 5½ tons per acre; no disease; no new varieties planted. *Turnips*—About 13½ tons per acre; quality not quite up to the average; had to be sown twice owing to dry weather in April and May. *Insects*—No injury. *Weeds*—No damage. *Pastures*—Average growth. *Live Stock*—Cattle and sheep were in good condition. Cattle and sheep free from disease. *Clip of Wool*—Fully up to the average.

STIRLING DISTRICT.

DUMBARTONSHIRE (Upper). *Wheat*—None grown. *Barley*—None grown. *Oats*—About 24 bushels per acre; bulk of straw about the same as last year, possibly a little lighter; grain and straw both damaged by rain. *Harvest*—Began about the usual time, but was very protracted. *Hay*—Was much about the same as last year, and generally well got; about 1¼ tons per acre. *Meadow Hay*—Quite a good crop, but badly spoiled by rain. *Potatoes*—Were a better crop than last year; about 6 tons per acre; very little disease; no new varieties planted. *Turnips*—Were much about the same as last year; about 18 tons per acre; crop brairded well; no resowing. *Insects*—With the exception of some grub in lea oats, there was no damage by insects. *Weeds*—Were bad owing to the wet season, and caused as much damage as last year. *Pastures*—Were slow in coming forward, but would average the same as last year. *Live Stock*—Throve well. Cattle and sheep free from disease. *Clip of Wool*—Was of fair quality, but under the average in weight.

DUMBARTONSHIRE (Lower). *Wheat*—About 32 bushels per acre; quality of grain similar to last year; seed sown from 3½ to 4 bushels per acre. *Barley*—Little or none grown in this district. *Oats*—About 36 bushels per acre; quality of both grain and straw better than last year. *Harvest*—Began later than usual. *Hay*—About 30 cwt. per acre. Most of the hay was well got; quite a contrast to last year. *Meadow Hay*—A good crop, but weather conditions interfered with the securing of it, a lot being lost. *Potatoes*—Crop heavier than last year; weight per acre would vary considerably according to varieties grown; yield 4½ to 10 tons per acre; not so much disease as last year. *Turnips*—About 16 tons per acre; quality similar to last year; a good braird; little or no resowing. *Insects*—No damage worth mentioning. *Weeds*—No more injury than usual. *Pastures*—Were of average growth; quality, although similar to last year, was not up to the usual average. *Live Stock*—Throve only fairly well, possibly due to insufficient sunshine. Cattle and sheep free from disease. *Clip of Wool*—An average clip.

STIRLINGSHIRE (Western District). *Wheat*—None grown. *Barley*—None grown. *Oats*—34 to 40 bushels per acre; straw about 25 cwt. per acre; grain and straw got in better condition than last year. *Harvest*—One week later than previous year, beginning about 4th September and finishing in most places around 20th October. *Hay*—30 to 38 cwt. per acre, and well got; clover much the same as last year. *Meadow Hay*—Average crop; not too well secured in most cases; *Potatoes*—Suffered from unfavourable weather and want of sun; some disease during lifting; average yield from 4 to 6 tons per acre; no new varieties planted. *Turnips*—Yield 18 to 25 tons per acre. Although there was finger-and-toe disease in the district the crop was much better than last year. In some instances there was second sowing on account of damage from fly. *Insects*—A little damage from fly, but less than previous year. *Weeds*—Some injury to crops from weeds, mostly from redshank and yarr; damage caused was much the same as last year. Potatoes and turnips could not be properly cleaned owing to weather conditions. *Pastures*—Were quite good, and of average growth. *Live Stock*—Throve fairly well until the latter end of season, when there was a falling off on account of inclement weather. Cattle and sheep free from disease. *Clip of Wool*—Of average clip and quality.

STIRLINGSHIRE (Eastern District). *Wheat*—About 48 bushels per acre; good quality; straw about 25 cwt. per acre. *Barley*—About 32 bushels per acre; fair quality; straw 18 cwt. per acre. *Oats*—About 40 bushels per acre; good quality; straw 20 cwt. per acre. *Harvest*—Began about the usual time, and conditions were quite good until 3rd October; thereafter, owing to bad weather, the later districts got a very bad harvest. *Hay*—Good crop, and secured in grand order. *Meadow Hay*—Fairly good. *Potatoes*—About an average crop. *Turnips*—Average crop; good quality; yield about

20 tons per acre. *Insects*—Nothing unusual. *Weeds*—About an average. *Pastures*—Fairly good. *Live Stock*—Did quite well. Cattle and sheep free from disease. *Clip of Wool*—Fair average.

CLACKMANNANSHIRE. *Wheat*—A good crop; the straw was abundant and standing well; generally secured in good condition; the grain thrashed well, and was fine and hard; 34 to 36 bushels per acre; 3 to 4 bushels of seed sown. *Barley*—Crop was abundant in straw; the grain, however, was deficient in colour, but was fairly well secured; yield about 32 bushels per acre; 3 to 4 bushels of seed sown. *Oats*—A fair crop, with good straw and standing well; ripened rather unevenly; a good many greens in places; on the whole, crops were secured in good condition; yield about 28 to 30 bushels per acre; average weight 39 to 40 lb. per bushel. *Harvest*—Began about the usual time. *Hay*—Was a good average crop; 30 to 33 cwt. per acre; well got, and the quality was excellent; Timothy a good crop; 40 to 45 cwt. per acre, and got in splendid condition, owing to ideal weather for hay-making. *Meadow Hay*—A good crop and well got. *Potatoes* this year were good; Kerr's Pink was the best crop of the season in this county; Golden Wonders were a fairly good crop; Arran Consuls bulked well, but were deficient in quality; very few early potatoes planted; average yield 6 to 7 tons per acre. *Turnips*—The turnip crop was good; 25 to 26 tons per acre; brairded well, no second sowing being required; there were a few cases of finger-and-toe disease. *Insects*—A few cases of wireworm and grub among the oats; damage was slightly greater than usual. *Weeds*—Very few weeds, being good weather for killing them. *Pastures*—The pastures were not bulky, but the quality of grass, however, was good. *Live Stock*—Did fairly well. Cattle and sheep were free from disease. *Clip of Wool*—Was a fair average.

PERTH DISTRICT.

FIFESHIRE (Middle and Eastern). *Wheat*—A good average crop; quality of both grain and straw excellent; average yield from 36 to 44 bushels per acre; seed from 3½ to 4 bushels per acre. *Barley*—A fine crop on good land, both as regards quantity and quality; thrashing out well, from 5 to 6 qrs. per acre; on the poorer land and late districts many fields thinned out badly in spring, and ripened irregularly with a poor yield of grain and straw; seeding from 2½ to 3½ bushels per acre. *Oats*—Also a good crop on good land; yield of straw under an average, but of good quality; thrashing out well; from 48 to 56 bushels per acre. Some fields were seeded in bad condition. On poor and heavy lands crops thinned out badly in the early stages of growth, ripened very irregular, and cut disappointingly, both as regards bulk and quality; seeding from 4 to 6 bushels per acre, according to variety. *Harvest*—Started first week in September, about same date as last year, and was generally finished about the end of the month; crops were secured in good condition, except on a few late farms, where harvest was continued under the worst possible weather conditions, extending in some cases into November. *Hay*—Quantity about 2 tons per acre, slightly under last year's yield; secured in fine condition; feeding quality excellent. *Meadow Hay*—None grown. *Potatoes*—From 7 to 8 tons seed and ware, fully 2 tons per acre over last year. Little or no disease in lates and second earlies; good quality, and keeping well in the pits. No new varieties of any interest were planted. *Turnips*—Swedes, yield under an average, from 15 to 18 tons; generally sound; brairded well; no resowing. *Insects*—Oats and barley on some fields were badly damaged by grub and wireworm. *Weeds*—Not to any great extent; less charlock than usual. *Pastures*—About the usual growth, but quality better than last year. *Live Stock*—Throve well; finished off the grass in better condition than last year. Cattle and sheep free from disease. *Clip of Wool*—About an average. *Sugar Beet*—A much smaller acreage was grown in the country, with disappointing results both as regards washed tonnage per acre and sugar content, the average being about 5 tons per acre, with a sugar percentage of 16·3; slightly less than last year.

FIFESHIRE (Western District). *Wheat*—An average crop of good quality; 30 to 40 bushels per acre; straw of good quality and average yield; seed 4 bushels per acre. *Barley*—Good quality on the best lands, but in later districts the quality was disappointing; yield 30 to 40 bushels per acre; straw was of average quantity; seed 3 to 4 bushels per acre. *Oats*—Generally reported a good crop, and usually good quality; yield 40 to 60 bushels per acre; straw much better quality than last year; seed 5 to 6 bushels per acre. *Harvest*—Commenced during the first week of September, being the usual time for the district, and was completed without much trouble, excepting in the later districts, when the weather was more broken. *Hay*—A good crop, and all well secured; was not of great bulk, but weighed well to the stack; 2 to 2½ tons per acre. *Meadow Hay*—Also a good crop, and above the average for quality. *Potatoes*—Early varieties were generally a light crop on account of lack of moisture in the early stages and the land being hard from lack of winter frosts; late varieties returned a good yield of good quality. The crop was generally free from disease; no new varieties planted. *Turnips*—One of the largest crops for several years, although in some instances the crop was below expectations; a few cases of finger-and-toe; the braird was generally good, and very few cases of second sowing. *Insects*—Crops were free from insect pests. *Weeds*—The favourable season allowed of the green crops being well worked, and crops were free from weeds. *Pastures*—Were sufficient for stock and the feeding quality was good. *Live Stock*—Stock throve well on the pastures, the weather during the greater part of the grazing season being mild. Cattle and sheep have been free from disease. *Clip of Wool*—Up to a good average, and the quality of the clip good.

PERTHSHIRE (Eastern District). *Wheat*—Very good crop of fine quality; yield about 38 bushels per acre; seed sown, 3 to 4 bushels per acre. *Barley*—Good average crop of nice quality yield about 40 bushels per acre; seed sown about 4 bushels per acre. *Oats*—Not so bulky as last year, but both grain and straw of much better quality. *Harvest*—Began about ten days later than last year, but in the earlier districts it was finished within a period of between three to four weeks. In late districts harvest was very protracted. *Hay*—Not so bulky as last year, but secured in excellent condition; yield about 30 cwt. per acre. *Meadow Hay*—Very little grown. *Potatoes*—Heavy crop of fair quality; yield about 7 tons per acre; very little disease. *Turnips*—Good average crop; yield about 20 tons per acre. *Insects*—Not more than usual. *Weeds*—Not more than usual. *Pastures*—Very good throughout. *Live Stock*—Throve well. Cattle and sheep free from disease. *Clip of Wool*—Full average.

PERTHSHIRE (Central District). *Wheat*—A small break was sown, but the return, however, was good; the crop was harvested in good condition; yield about 42 bushels per acre; straw very good. *Barley*—Was an average crop, both as regards acreage and quality; the yield would be about 35 bushels per acre, weighing from 50 to 53 lb. to the bushel; secured in good condition. *Oats* Were extensively grown; yield about 36 to 38 bushels per acre; oats cut in the end of August and in early September were well got, but those cut in the latter weeks of September and early weeks of October were partly discoloured and some of the grain destroyed on account of unfavourable weather. *Harvest*—One week late on most of the farms. *Hay*—Was a good crop, and was secured in excellent order. *Meadow Hay*—Yield was very fair, but on account of the wet weather it was destroyed on some farms. *Potatoes*—Were a large crop, free from disease, and well secured; average yield from 7 to 9 tons per acre. *Turnips,* yellow—The yield on some farms was very good, from 12 to 17 tons per acre. On other farms, however, they were a failure on account of finger-and-toe disease; swedes all over were a fair crop. *Insects*—Were not so numerous as in former years. The cold wet spring did not permit the wireworm and grub to multiply to any great extent. *Weeds*—Were difficult to keep down on account of the wet weather. *Pastures*—Grass was abundant, although lacking in feeding qualities, due to the prevailing cold weather. *Live Stock*—Kept healthy. Cattle and sheep were free from disease. *Clip of Wool*—Was good, and a full average.

FORFARSHIRE (Western District). *Wheat*—34 bushels per acre; straw and grain good. *Barley*—42 bushels per acre; grain good, although not heavy; straw excellent. *Oats*—50 bushels per acre; grain mostly of good quality, except in later districts; abundance of good straw; a few fields damaged by grub. *Harvest*—Began somewhat later than usual, but only protracted in later districts. *Hay*—About 36 cwt. per acre: most of the crop was secured in good condition. *Meadow Hay*—Very little meadow hay grown in this district. *Potatoes*—The potato crop was good, and the yield averaged over 7½ tons, nearly 2 tons more than last year; the quality generally was good; no disease worth mentioning. *Turnips*—Good average crop. There was very little second sowing; yellows did best, the average weight being from 18 to 19 tons. *Insects*—Some fields of oats were badly damaged by grub. *Weeds*—Unless in isolated cases, weeds did not get too much of a hold so as to cause damage. *Pastures*—Were rather bare. *Live Stock*—Throve well. Some cases of anthrax in cattle; grass sickness in horses still takes its toll in this district. *Clip of Wool*—Quantity and quality both average.

ABERDEEN DISTRICT.

FORFARSHIRE (Eastern District). *Wheat*—34 bushels per acre; 28 cwt. straw per acre; both grain and straw of good quality; much better than last year; seed sown, 3½ to 4 bushels per acre. *Barley*—44 bushels per acre; straw very short, 25 cwt. per acre; fine quality grain; seed sown, 3 to 3½ bushels per acre. *Oats*—56 bushels per acre; straw of very fine quality, 30 cwt. per acre; both grain and straw much better than last year; seed sown, 6 bushels per acre. *Harvest*—Commenced 3rd September, about one week later than usual. *Hay*—Was of a very fine quality, but a light crop, not over 45 cwt. per acre. *Meadow Hay*—Was less productive. *Potatoes*—Yield 7 tons per acre; no disease; all varieties were of very good quality; no new varieties planted. *Turnips*—A light crop of fair quality; about 18 tons per acre; no trouble with brairding, and therefore no resowing. *Insects*—None. *Weeds*—None. *Pastures*—Fine pastures everywhere of much better quality than last year. *Live Stock*—Throve exceedingly well. Sheep free from disease; a few cases of anthrax among cattle, but not so many as reported in recent years. *Clip of Wool*—About an average clip of fair quality.

KINCARDINESHIRE. *Wheat*—36 to 38 bushels per acre; grain and straw of excellent quality where harvested early. *Barley*—40 bushels per acre, except from crops sown late; great differences in yield in some districts compared with others; generally grain and straw good; 4 bushels per acre sown. *Oats*—48 to 50 bushels per acre in the case of a standing crop, and from 24 to 30 bushels in the case of crops that had been lodged. Generally oats were a good sample; both grain and straw much better than last year; straw plentiful. *Harvest*—Generally earlier than last year, but in late districts harvest was very protracted owing to bad weather. *Hay*—A light crop generally, but weighed well, averaging 40 cwt. per acre; quality excellent, and secured in perfect order; both clover and ryegrass were thin on the ground; hay was usually late in being cut. *Meadow Hay*—None. *Potatoes*—A very good crop, about 8 tons per acre; quality very good; few new varieties planted. *Turnips*—A very good crop in appearance, but both dry-rot and finger-and-toe disease prevalent. Yellows 15 tons, and swedes 20 tons per acre; where the ground had been limed crops of 30 tons per acre lifted; crop brairded very well, and little second sowing needed. *Insects*—Oats thinned in places. *Weeds*—None. *Pastures*—Very plentiful during summer, but scarce and late in the early part of the season. *Live Stock*—Cattle and sheep throve well, and proved profitable on grass; winter-fed cattle got much dearer in the late spring, and paid better than those of recent years. A good deal of grass sickness amongst horses. Cattle and sheep free from disease, except for a few cases of anthrax. *Clip of Wool*—Clip generally good, and quality satisfactory.

ABERDEENSHIRE (Buchan District). *Wheat*—None grown. *Barley*—32 bushels per acre; quality of grain and straw very good; seed sown, 4 bushels per acre. *Oats*—40 bushels per acre; seed sown, 6 to 6½ bushels per acre; quality of grain and straw very good, and would be above the average of the last four years. *Harvest*—

Began about a week earlier than usual. *Hay*—Average crop ; about 3½ to 4 tons per acre ; a little deficient in clover. *Meadow Hay*—None grown. *Potatoes*—Yield about 12 tons per acre, all of excellent quality, with no disease ; potatoes grown were only for home consumption and not for sale. *Turnips*—About 15 tons per acre, of excellent quality ; crop brairded well, and only one sowing required. *Insects*—None. *Weeds*—Not to any great extent. *Pastures*—Above the average growth and quality. *Live Stock* throve well. Cattle and sheep free from disease.

ABERDEENSHIRE (Central District). *Wheat*—No wheat grown. *Barley*—37 bushels per acre ; 5 bushels more than last year ; 21 to 22 cwt. straw ; much about the same as last year ; quality of grain and straw better than last year ; natural bushel weight not over an average of 52 lb. ; seed sown, 3 to 3½ bushels per acre where drill sowing machine used ; 4 bushels per acre where broadcast sowing machine used, or sown by hand ; seldom has the range of qualities and values been so wide. *Oats*—44 bushels per acre ; 6 bushels per acre more than last year ; natural bushel weight not over 41 lb. per bushel on an average ; straw 22 to 23 cwt. per acre ; much about the same as last year quality of grain and straw rather better than previous years ; seed sown, Potato and all thin-husked varieties from 5 to 5½ bushels per acre where drill sowing machine used, 6 to 7 bushels per acre where broadcast sowing machine used, or sown by hand ; for all thick-husked varieties additional 2 or 2½ bushels sown. *Harvest*—Barley harvest commenced from between 5th to 10th September ; oat harvest commenced about 10th September ; with a few exceptions barley harvest was completed from 10th to 15th October, and oat harvest from 10th to 20th October. *Hay*—25 cwt. per acre ; 6 cwt. per acre less than in previous year ; not generally so well mixed with clover as last year, but of very much better quality. *Meadow Hay*—Was not so productive as in 1927. *Potatoes*—7½ tons per acre ; 2 tons more than last year ; disease only to a small extent was reported ; crop generally was of very good quality ; Majestic, Kerr's Pink, Golden Wonder, Arran Chief were the general field crops. No new varieties reported as being planted, and no report of any being sprayed. *Turnips*—15 tons per acre ; 1 ton more than in the preceding year ; quality better than last year ; crop brairded fairly well ; second sowing was reported, but only to a small extent ; frost at night and bright sun in the mornings adversely affected the braird. *Insects*—No report of injury by insects. *Weeds*—No report of injury by weeds, at least not more than in an average season. *Pastures*—During the first half of the season were not of average growth ; quality only fair ; improved towards end of season, but not of such good feeding quality as last year. *Live Stock*—Did not progress rapidly, but on the whole did fairly well. Cattle and sheep have been free from disease. *Clip of Wool*—Was of an average, but not so good as last year.

ABERDEENSHIRE (Strathbogie District). *Wheat*—None grown. *Barley*—As time goes on the acreage put under barley is decreasing ; the reason is due to the fact that the climate prevailing throughout the district does not favour the production of this cereal. Where barley was grown the late season had a bad effect on the quality of the grain, with the result that samples are scarcely up to the requirements of maltsters for distilling purposes. *Oats*—Were a good crop, but were harvested late owing to the cold and sunless season. As a rule cutting was commenced on the early side, resulting in much of the grain being rather green and of lighter weight than if it had ripened properly. In not a few instances heating resulted if sufficient care had not been exercised in the ingathering. About the middle of October the weather broke and continued bad, which kept back in many cases the ingathering till well on to Martinmas term. The weight of the saleable samples of grain would vary from 40 to 43 lb. per bushel. *Harvest*—Began fully a fortnight later than the usual time, but, as previously stated, it was generally commenced on the early side. *Hay*—Was generally a light crop, there being a scarcity of clover to make up the weight to a normal yield. The greater portion of it was fairly well secured and stacked in good condition. *Meadow Hay*—No meadow hay grown in the Strathbogie district. *Potatoes*—Yield rather disappointing. The tubers were not plentiful, and generally were under average. There was no disease; none of the newer varieties have been planted in the field to any extent. Lifting was greatly retarded on account of unsuitable weather, and in many cases it was Martinmas before they were removed from the drills. *Turnips*—As regards quality turned out a good crop, much better than could have been expected in a general backward season. The weight on the whole would be up to an average yield. There was no trouble with brairding and no second resowing required. *Insects*—Fortunately none of the crops suffered damage from insects. *Weeds*—The crops of 1927 being heavy and laid, there were no weeds of any consequence to contend with, which lightened the work of cleaning the turnip fields. *Pastures*—Were not plentiful in the early part of the season, but later they got to be more abundant. There were not a few complaints regarding stock, which did not thrive as well as usual. Cattle and sheep have been quite free from disease. *Clip of Wool*—The clip of wool all over was good, both for quality and quantity.

BANFFSHIRE (Lower District). *Wheat*—A few acres grown; yield about 32 bushels per acre. *Barley*—Average yield 35 to 40 bushels per acre, weighing 53 to 55 lb. per bushel; quality good; straw also of good quality; seed sown, 4 bushels per acre. *Oats*—Average yield 48 to 60 bushels per acre, weighing about 42 lb. per bushel; quality fairly good; straw good; seed sown, about 5 bushels per acre. *Harvest*—Barley harvest began towards end of August, oats about 1st of September; harvest finished about middle of October. *Hay*—Quality fully better and crop slightly heavier; about 40 cwt. per acre. *Meadow Hay*—None grown. *Potatoes*—Yield better than last year, averaging from 7 to 10 tons per acre; no disease; Arran Banner was the only new variety, and did very well. *Turnips*—Much better crop than last year; yield from 18 to 20 tons per acre; crop brairded well; no second sowing. *Insects*—No damage by insects. *Weeds*—No injury by weeds. *Pastures*—Fully above average. *Live Stock*—Throve well on pastures. Cattle and sheep free from disease. *Clip of Wool*—Above average.

BANFFSHIRE (Upper District). *Wheat*—None grown. *Barley*—Very little grown; the few fields grown this year were of a very poor quality, and unfit for distilling purposes owing to the wet and sunless summer. *Oats*—Sowing began last week of March, and extended throughout the month of April; owing to the broken weather with heavy rains and snowfalls the seed-bed was raw and sodden, and in clay soils this tended to make the braird thin. *Harvest*—Began in the last week of September, two or three weeks late; much of the crop was cut very green, and stooked too quickly; the ricks heated, and the grain was much spoilt. Only on the lower farms will the grain be fit for seed, and hillside farmers will again have to purchase seed, and oatmeal as well. *Hay*—The hay crop, though quite thick in the root, was short; where there was a good mixture of clover, from 100 to 150 stones per acre were secured. *Meadow Hay*—Meadows are not cut in this district, but are pastured when the sown grasses get bare. *Potatoes*—Crop much better than last year, but only grown for home consumption; Kerr's Pink is now the leading variety. *Turnips*—Swedes were got in fairly seasonable during last week of May, and yellows during first three weeks of June. They were stiff to braird, but came away later. In general the roots were not all up to size; yield from 7 to 10 tons per acre. Horse-hoeing and harrowing were delayed owing to wet weather. *Insects*—No complaints as regards fly or other insect pests. *Weeds*—Knot-grass appeared much in the grain crops and also in the clean land, due to the former wet season and the tillage being done in wet weather. *Pastures*—Stock were early afield, and kept the pastures bare for a time, and cattle had only a full flush of grass for a few weeks. *Live Stock*—Did well only to end of August, and pastures giving way then, farmers were wise who cleared out parks at that date, as prices of stores fell back after. A very clean bill of health happily to record in cattle and sheep. *Clip of Wool*—Wool a fair clip; sheep pastures were late of coming on hill grounds.

INVERNESS DISTRICT.

NAIRNSHIRE. *Wheat*—None grown. *Barley*—4 bushels per acre sown; an improved yield of about 4½ qrs. per acre, with a bulky crop of straw. *Oats*—About 6 bushels per acre sown. An excellent return obtained, about 7 to 8 qrs. per acre, and on some farms considerably more; straw plentiful and of good quality. *Harvest*—Began about the last week in August, about a week later than usual time. *Hay*—A good crop. *Meadow Hay*—None grown. *Potatoes*—A very heavy crop, with no disease. *Turnips*—On most farms a heavier crop than that recorded for several years. Some farms, however, had to sow twice, and in some cases three times. *Insects*—No injury. *Weeds*—No injury. *Pastures*—Were about an average. *Live Stock*—Throve very well. Cattle and sheep free from disease. *Clip of Wool*—Average.

INVERNESS-SHIRE (Skye). *Wheat*—None grown. *Barley*—None grown. *Oats*—A good crop; not very promising at first, but ripened well eventually, and secured in splendid condition. *Harvest*—Commenced about 10th September—about the same time as in the previous year. *Hay*—Ryegrass an average crop, and secured in good condition; clovers do not grow well on this island, except in a few favoured spots. *Meadow Hay*—A lighter crop, but mostly secured in good condition. *Potatoes*—A good crop. *Turnips*—Not grown extensively in the island, but where grown the crop was fair;

brairded well; no second sowing was necessary. *Insects*—No appreciable damage. *Weeds*—Always plentiful, but not more injurious than usual. *Pastures*—The pastures were very bare up to the beginning of August, at which time they came on very well. *Live Stock*—When the grass became plentiful, stock throve well, and maintained their condition. Disease was somewhat prevalent in cattle and sheep during the month of May; remainder of year, however, was normal. *Clip of Wool*—Quality of wool good, but weight scarcely up to average.

INVERNESS-SHIRE (Lochaber). *Wheat*—None grown in this district. *Barley*—None grown in this district. *Oats*—A good crop; well harvested in favourable weather; seed sown, generally from 5 to 6 bushels per acre. *Harvest*—At the usual time. *Hay*—Better crop this year than that secured in 1927. *Meadow Hay*—Better crop than last year. *Potatoes*—Good, probably better than last year; no disease; so far as known no new varieties planted. *Turnips*—Good crop; not more than one sowing required. *Insects*—None. *Weeds*—Not so far as is known. *Pastures*—Good average. *Live Stock*—Throve very well. Cattle and sheep have been free from disease; only one case of sheep scab reported. *Clip of Wool*—Rather better than the average.

ROSS-SHIRE (Dingwall and Munlochy). *Wheat*—Very little grown; yield 32 to 38 bushels per acre; seed sown, 3 to 4 bushels per acre. *Barley*—A much smaller acreage sown this year; yield 28 to 36 bushels per acre; seed sown, 4 to 5 bushels per acre; an average quality of grain and straw. *Oats*—Yield 44 to 80 bushels per acre; seed sown, 6 to 8 bushels per acre; quality of grain and straw above the average. *Harvest*—Began about the usual time; the crop was cut much faster than usual, as it was a standing crop almost everywhere, but a great deal of it was damaged in the stack by heating, there being no wind to dry the stooks; on later places harvest was protracted owing to very wet weather; on some farms stooks were in the field until about the second week of December. *Hay*—Quantity of hay 1 to 1½ tons per acre; on most farms the quality was very fine. *Meadow Hay*—None grown. *Potatoes*—A very fine crop of potatoes on all farms; yield 5 to 10 tons per acre of the finest quality; a little disease in earlier varieties. *Turnips*—Swede turnips gave a good yield, quite up to the average; about 15 to 25 tons per acre; yellow turnips were a fine crop, 15 to 20 tons per acre; some second sowing required owing to frost, but mostly to fly; very little finger-and-toe disease. *Insects*—Crops were not injured by insects. *Weeds*—Crops were not injured by weeds. *Pastures*—In most places were above average growth. *Live Stock*—Throve well. Cattle and sheep were free from disease. *Clip of Wool*—Was up to the average and of good quality.

ROSS-SHIRE (Tain, Cromarty, and Invergordon). *Wheat*—Average crop, about 34 bushels per acre, being 2 bushels per acre better than last year; quality good; straw about normal; average seed sown about 4 bushels per acre. *Barley*—Averaged about 36 bushels per acre, about 4 bushels per acre more than the preceding year; quality and colour good; straw about normal; average seed sown about 4 bushels per acre. *Oats*—Average crop; about 48 bushels per acre, about 2 bushels per acre better than last year; quality good; straw also of good quality; seed sown, 4 to 6 bushels per acre, according to variety. *Harvest*—Started about 7th September, about the usual time. *Hay*—Was a fair crop, averaging about 30 cwt. per acre, being lighter than usual; quality good. *Meadow Hay*—None grown. *Potatoes*—Average crop; about 7 tons per acre, about 3 tons per acre more than the previous year, and about a ton above the average; practically no disease, and no new varieties planted. *Turnips*—Average crop of swedes, about 25 tons per acre, about 7 tons better than last year; yellows averaged about 22 tons per acre, about 8 tons better than the preceding year; crop brairded well; no resowing. *Insects*—No damage by insects. *Weeds*—Were not too numerous; charlock, as usual, was bad in parts. *Pastures*—Were good. *Live Stock*—Throve well. Cattle and sheep free from disease. *Clip of Wool*—About an average.

CAITHNESS-SHIRE. *Wheat*—None grown. *Barley*—A good average crop, but the acreage under this cereal is diminishing, partly due to the straw not being so useful as fodder, and the mills being not all adapted for 'humbling.' From 4 or 5 bushels per acre of seed sown; yield about 32 to 40 bushels per acre. *Oats*—Seed oats required to be thickly sown, as the preceding harvest had been unfavourable, and the crop lay out in hand screws where laps of sheaves germinated. About 6 bushels per acre were sown to allow for seeds being weak. Generally there was a strong braird, and the stems grew tall and leafy. The weather continued favourable, and the lay of the crop was in one direction; even the 'lodged' patches were secured by the machines. *Harvest*—Was in full swing in September, and fine days were fully occupied, thus very little 'stook drill'—a contrast to last year; the crop was secured in excellent condition in most places. Field screwing was not much required. The 'taking in' was accomplished in an unusually short time. *Hay*—About 1½ to 2½ tons per acre would be the general yield; a fair average, and secured in good condition, followed by a good aftermath of clover; wild white is now generally sown, also a mixture of 'ladies fingers.' *Meadow Hay*—Was fully equal to last year, and was secured in better order. *Potatoes*—The yield of potatoes greatly exceeded last year; there was no blight to any great extent; the 'shaws' covered the ground early in the season, hence there were less depredations by rooks. Early new varieties were tried, and these suffered from the rooks. Kerr's Pink proved a good cropper, and is in the way of displacing the Champion as a main crop; 6 to 8 tons per acre would be a general yield. *Turnips*—Brairded well, and made steady progress, some 'bolting' to seed. There were between 15 to 20 tons per acre of swedes, and 20 to 25 tons of yellows. Swedes are found to stand the frosts well, and are valuable in the spring for all kinds of farm stock; storing in pits is now seldom resorted to. *Insects*—There were very few causes of complaint from ravages by insects compared with some past years. A favourable start in cereals and moist weather brings the crop through the 'grub' attack. Dry cold weather, when the plant has exhausted the nourishment in the seed, intensifies insect attacks. *Weeds*—A luxuriant growth of spurrey, locally called 'karan,' was prominent in oats after turnips. This continued through the season, and persisted in the sheaves at cutting time. Thistles, coltsfoot, sow thistles, and sorrels also abound. *Pastures*—Kept growing; wild white clover gave a green tinge to the fields even in winter; it is, however, blamed for inducing 'scouring' in lambs, and another variety to correct this tendency is desirable. *Live Stock*—Cattle and sheep came on well, and the early harvest helped to 'green fields and pastures new,' being a healthy change. Sheep scab, rabies, and anthrax are in the way of being exterminated; ringworm is getting rarer, and with care in sale rings, &c., might be abolished in the north; no foot-and-mouth disease in Caithness and Orkney, this disease not being known for generations. *Clip of Wool*—Wool of good quality continues to be produced.

ORKNEY. *Wheat*—None grown. *Bere*—36 bushels per acre, weighing 49 lb. per bushel; seed sown, 3½ to 4½ bushels per acre. *Oats*—A good crop; very heavy lea crop after wild white clover; about 32 bushels per acre, weighing 40 lb. per bushel; seed sown, 5 to 6 bushels per acre. Oats were sown a month earlier than last year, but cold north winds checked the crops. Later on, however, showers and sunshine improved them. *Harvest*—Began about the 1st October, and, owing to the very heavy lea crop, some of it was too heavy for the binder; it was late in the season before all the crop was secured. *Hay*—Was a fair crop, about 23 cwt. per acre. *Meadow Hay*—None grown. *Potatoes*—Were a good crop, weighing about 6 tons per acre. *Turnips*—Were a fairly good crop, weighing about 13 tons per acre. *Insects*—Some damage was done by grub to lea oats; to prevent this, lea oats should be rolled as soon as possible after being sown. *Weeds*—Not much injury done by weeds. *Pastures*—Were exceptionally good, due largely to wild white clover. *Live Stock*—Throve well. Cattle and sheep were free from disease; one or two cows died from an over-feed of wild white clover. This clover requires a mixture of natural grasses sown along with it to make it healthy pasture. *Clip of Wool*—The clip of wool was over an average.

SHETLAND. *Wheat*—None grown. *Bere*—Averaged about 34 bushels per acre, weight 50 lb. per bushel. *Oats*—30 bushels per acre, weight about 32 lb. per bushel; quality fair; bulk of straw good, and quality also good. *Harvest*—Was rather later than usual; the crop remaining green until cut. It did not stand long in stook, and was secured in good condition. *Hay*—The hay crop was very light owing to the cold dry spring, weight about 22 cwt. per acre; clover was very scarce. *Meadow Hay*—Was also under the average, weight about 20 cwt. per acre, of fair quality. *Potatoes*—The potato crop was above last year's average; the weight per acre was from 7 to 9 tons; quality was very good, and there was no disease. *Turnips*—The turnip crop was also better than last year; the average weight was about 12 tons per acre. There is not so much finger-and-toe as last year; only one sowing was required. *Insects*—No damage was done by insects. *Weeds*—The crops were clear of weeds with the exception of charlock, which is plentiful nearly every year in Shetland. *Pastures*—Were fair for grass during the summer, but could have been better. There was very little sunshine during June and July. The grass improved later, and there was abundance during the autumn. *Live Stock*—Did not do well until late in the summer. Cattle and sheep have been free from disease. *Clip of Wool*—The clip would be rather under the average, but quality similar to other years.

THE WEATHER OF SCOTLAND IN 1928.

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THIS report consists of (1) a general description of the weather from month to month, and (2) a selection of rainfall returns in which each county of Scotland is represented by one or more stations. It is to be noted that all the temperature readings referred to are, unless otherwise stated, from the thermometers exposed in the regulation "Stevenson Screen."

JANUARY.

A succession of depressions moving from the Atlantic across or to the northward of Scotland caused the weather of the month to be almost continuously mild, wet, and stormy. Barometric pressure was considerably below normal, and winds blew predominantly from south and south-west, reaching gale force on many days over the greater part of the country.

Though the first few days were cold, temperature thereafter was in general high for the season of the year, and the mean temperature (for the sixth January in succession) was very appreciably above normal.

Rainfall was remarkably frequent, many places having some precipitation on every day, and in the aggregate more than in any January of the past fifty years. A great part of the country had twice the normal fall; parts of the Central and West Highlands had over 20 inches, and locally in the Loch Katrine area and in the Sound of Mull totals of 25 inches were reached. These amounts, it will be noted, approximate to the normal *annual* rainfall of the east coast.

Snow was not frequent, being experienced only in the north in the opening days of the month, and rather widely on 11th.

Thunder was reported from some part of the country on no fewer than eighteen days; daily in the west from 7th to 14th, and almost daily from 23rd onwards.

A few bright days and a comparative absence of fog allowed sunshine aggregates to approximate to normal.

FEBRUARY.

The stormy type of weather continued to about the 18th of February; thereafter quiet anti-cyclonic conditions prevailed. There was again a considerable excess of winds from south and south-west, and the force was high between 6th and 11th, and again from 15th to 18th.

The temperatures recorded covered a wide range, from 59° at Inverness and Gordon Castle on 9th and 21st respectively to 17° at Braemar on 23rd, but, in the mean, the temperature was, as in the previous month, some two degrees above the normal.

Rainfall, for the most part, was rather in excess of the average, but rather below in South Ayrshire, and decidedly below in Banffshire and Aberdeenshire. Most of the rain fell before the 18th, the period 4th to 8th being particularly wet and giving rise to flooding in many rivers, more particularly in the Spey valley. Snow fell rather widely in the first few days, and again in some districts around 10th and 17th.

As in January, a few sunny days brought sunshine aggregates well up to normal.

MARCH.

With anti-cyclones as a rule over Scandinavia or to the northward, winds were predominantly north-easterly to south-easterly, and in the second week were very cold. High temperatures in the first four days and many mild nights brought the mean for the month up to normal, but the days were on the whole cold. The extreme temperatures recorded in Scotland were 59° in Argyllshire on the 4th, and 16° at West Linton on the 13th.

Rainfall was markedly below the normal in the north-west and north, and somewhat below in Mid-Lothian, but elsewhere there was at least a moderate excess. Between the 16th and the 21st there were some heavy falls which resulted in heavy flooding of many rivers, especially in Perthshire. At many places snow or hail fell on every day from 8th to 13th, the snowstorm of 10th to 12th affecting nearly the whole of Britain. On 11th Glasgow had six inches of snow, of which five inches were lying on the following day. With a gale from E.N.E. many roads were blocked with snowdrifts. Again on 29th there was rather heavy snow in some districts.

Thunder occurred sporadically on 10th, 11th, 15th, and 30th.

Fog affected the east coast, especially about 4th and 23rd to 25th. Sunshine was markedly deficient over all, the east in particular having rather less than half its normal share.

APRIL.

Until the 11th conditions were milder than normal, but by the middle of the month a stream of cold polar air flowed over the country and brought about a very cold spell, which lasted until about the 22nd. At Braemar in the early morning of 16th a screen temperature of 18° was recorded. Fairly warm weather returned around the 25th, a temperature of 73° being reached at Kelso on the following day. The last few days of the month were again rather cold.

Rainfall was very deficient in Fife and Mid-Lothian, appreciably in excess in Aberdeen, the Loch Katrine area, and Wigtownshire, and appreciably deficient elsewhere. At Edinburgh the month was the driest April since 1912. As a rule, most of the rain fell in the first twelve days, though in the north-east there were rather heavy falls of snow or rain from 17th to 20th.

Thunder was reported from one place or another on ten days, rather generally on the 10th, and in the west on the 26th.

Except in the Hebrides and the north-west the monthly totals of sunshine were below the normal, being in eastern Scotland some three-fourths of normal.

MAY.

Weather was sunny and warm in the first week, cold in the second week with ground frost, and even some snow on high ground in the north on 15th and 16th ; and thereafter about normal in the matter of temperature, except that in the south and west the last three days were very warm, and in the east the 31st was very cold. Mention may be made of temperatures of 76° at Ardtornish on the Sound of Mull on the 31st, and 74° at Ruthwell and Oban on the 30th.

Rainfall mostly was markedly deficient, but about up to the average around the upper Moray Firth. At Fort William only 0·85 inch was recorded, the lowest there for at least forty years.

The chief fall of the month in most places occurred on 26th and 27th.

Local thunder was reported on five days.

Fog in the east reduced the sunshine aggregates considerably, but in the west there was much sunshine, as, for example, 249 hours at Tiree and 218 hours at Oban, in contrast with 124 hours at Aberdeen.

JUNE.

The weather of June was, in the main, unsettled, cold, and wet. For Scotland as a whole, the month was some 3°·5 below normal in the matter of mean temperature, almost as cold as June 1927, which had been much the coldest June for at least sixty years. The month opened, however, with some very warm days, temperatures of 75° to 77° being reached in a few places. On the 4th came a very sharp drop of temperature, and in the second week ground frost occurred in some districts and snow on high ground. At Balmoral, Braemar, and Logie Coldstone screen temperatures of 28° were noted on the 5th.

The relation of rainfall to normal ranged from a slight excess in Orkney to more than twice the average in the east and south, most of this rain falling after the first week. In the rainstorm of 9th-10th many districts had over an inch and places in the Loch Katrine area over two inches ; on the 13th some almost equally heavy falls occurred in the south and south-east, and on some later dates similar falls locally.

Thunder was reported at one place or another on ten days.

Sunshine totals, curiously enough, were slightly above normal in the east, and quite decidedly above in the west.

JULY.

The mean temperature was slightly below the average in the west and about or above the average in the east, and on the whole day temperatures were rather low. The warmest periods were from 11th to 15th, and around the 21st. In northern districts on the last two or three nights ground frost occurred, and snow fell on the Cairngorms and some other high peaks.

Rainfall in most southern, south-western, and eastern districts was decidedly deficient, but towards the north-east there was some excess. The wet area of Scotland around Glenquioch had, however, over 12 inches—*i.e.*, twice its normal, and more than in any July for at least fifty years. The first half of the month was very wet in most western districts, and again after the 26th there were moderate falls. In places in the east there was almost a drought from 2nd to 25th, after which some heavy falls almost restored the balance. The preponderance and strength, for the season of the year, of south-westerly winds was notable.

A thunderstorm passed over central Scotland on the 28th, and the north-east on the 29th.

In the east sunshine was about normal, but in the west and north remarkably deficient.

AUGUST.

Mean temperature for the month differed little from the normal, the days being rather cooler, but the nights rather warmer than the average. The cold of the last few days of July continued for a day or two into August, but then came a considerable rise of temperature, with readings on the 5th of 79° at Perth and 76° at Stirling and Paisley. Later, temperature was mostly moderate.

For the country as a whole rainfall showed an excess of some 20 per cent, though in the extreme north and north-west the fall was much below normal. The first wet period of the month was from about 5th to 7th, again from 10th to 12th, 19th to 20th, and 25th to 29th there were some fairly heavy falls, often intense locally and accompanied by thunder. Thunder occurred locally on 2nd, 4th, 5th, in the east or pretty generally daily from 11th to 15th, and in many places from 23rd to 29th. On the last-mentioned date some structural damage was done in the Dumfries area. Flooding was reported in the Border districts, and much damage was done to the railway line near Brora, Sutherland, by heavy rainfall on the 12th.

The west enjoyed moderate sunshine, but in the east the amounts were deficient.

SEPTEMBER.

In the first fortnight temperatures were, as a rule, above the average; later on they were low for the season of the year, and during the last few days of the month there was ground frost in many places. On the 28th snow fell on the Cairngorms and other high mountains in the north. A temperature of 23° was observed at Braemar on the 29th, and one of 24° at West Linton on the 23rd. The highest temperature of the month was 72°, noted at North Berwick and Ruthwell on the 13th.

For the country as a whole rainfall was some 10 per cent above normal, but much of this was accounted for by a 50 per cent excess in the Central Highlands, for in the southern and the outlying north and north-west districts there was a slight deficiency. The wet periods were from about the 2nd to the 5th generally, from 7th to 10th, and from 16th to 19th in the west.

Winds were high on 7th and 19th, and reached gale force in the Moray Firth on the 28th, the strong northerly and north-easterly winds at the end of the month causing high seas along the east coast.

Thunder occurred in the west on 9th, in the east on 19th, and locally on 10th, 12th, 13th, and 18th.

In the west sunshine was slightly above the average, and in the north and east very much above; at Edinburgh the month was the sunniest September since 1906.

OCTOBER.

The weather of October was in the main mild and wet, with an excess of southerly and south-westerly winds, at times reaching gale force.

The cold weather of the end of the previous month persisted for the first few days of October, but by the 7th the weather had become very mild, and with the exception of two or three days, these mild conditions persisted to the end of the month.

In general there was an excess of rainfall, the only exceptions to this being in some extreme northern and north-eastern districts. At Rothesay a total of 10·31 inches was measured, a fall only once (viz., in 1917) exceeded there in that month during the last one hundred and twenty years. Weather was wet generally from 5th to about 11th, and from 16th to 19th heavy rain spread slowly from westward across the country. In the west some heavy falls occurred, 4·50 inches at Kinlochquoich on 18th-19th and 2·53 inches in Arran on 19th. The northern and eastern districts were comparatively free from very heavy falls.

Thunder occurred locally on 6th, 8th, 9th, 18th, 20th, 21st, and 24th.

Sunshine aggregates were some 10 per cent below normal in the west, but above the average in the extreme north.

NOVEMBER.

Conditions were at first quiet and rather cold, with ground frosts and little or no rain, and with dense fog, notably in the Clyde area, on 8th-9th. On 10th very unsettled conditions developed, and between then and 25th several deep depressions crossed the British Isles, causing an excess of south-westerly winds and much abnormally mild wet weather, interrupted only by brief falls of temperature in the rear of the various depressions as they passed. On the 23rd a considerable rainstorm swept the whole of Scotland, with more than 2 inches of rain at a few places. After the 25th conditions were again relatively stable.

In nearly all districts rainfall was in excess of normal, though locally in places there were slight deficiencies. At Rothesay the experience of October was repeated in that the November fall (9·19 inches) was the greatest recorded in any

November during the last one hundred and twenty years with the exception of 1917.

On the 23rd a south-westerly gale of great severity did much damage, with flooding in many districts. At Edinburgh, which happened to be too near the centre of the depression to experience the maximum wind force, the barometer fell to 28·10 inches in the course of the afternoon, this being the lowest pressure observed locally since 1886.

Thunderstorms occurred locally from 19th to 23rd, on 25th, and on 29th.

Sunshine aggregates were on the whole rather above the average.

DECEMBER.

The month opened with mild conditions, but after the first week there was a sharp fall of temperature, with severe frosts and low temperatures until after the middle of the month. For some days after 22nd weather was somewhat milder, but around the 28th there was another sharp fall. The highest temperature recorded was 55° at Perth on the 1st, the lowest 14° at Braemar on the 28th.

Over a great part of Scotland there was a trifling deficiency of rainfall, but around the Firth of Clyde a slight excess. The wetter periods of the month were from 2nd to 10th, and again between 22nd and 25th, when some heavy falls occurred in north-western and extreme western districts. Snow was reported locally on 7th and 8th, and fairly generally on 14th to 15th, but there were no heavy falls.

High winds or gales occurred on 7th and 23rd to 26th. Thunder was reported on the 6th in Ayrshire and on 24th to 26th in the extreme north and west.

Sunshine totals exceeded the normal in the south and east, but were below the normal in the north and west. At Baltasound, in Shetland, only ten hours of sunshine was recorded during the month.

General Note.

Perhaps the most notable features of the weather of the year 1928 were (i) the great excess of rainfall for the year as a whole, the average over Scotland being 124 per cent of the normal, with, on the whole, a deficiency of sunshine; (ii) the wetness, in particular, of January, June, and October, with over all averages of 214 per cent, 184 per cent, and 145 per cent respectively of the normal rainfall; (iii) the severe gales of January, February, and November; (iv) the coolness of June with a mean temperature of 3°·5 below normal; (v) the relative mildness of January, February, and November, all with mean temperatures some 2° above the normal.

Rainfall Records for 1928, in Inches.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
Shetland—Lerwick .	7·65	5·37	2·38	1·58	1·22	3·69	2·03	3·02	2·52	5·79	5·33	5·88	46·46
Orkney—Kirkwall . .	5·79	3·78	2·52	1·48	1·31	1·90	2·35	1·60	2·77	4·00	4·50	4·12	36·12
Caithness—Wick . .	4·70	1·69	1·69	1·60	1·48	3·11	2·17	2·01	2·39	2·54	4·58	3·47	31·48
Sutherland—Tongue .	7·61	4.39	2·71	1·81	1·86	3·56	2·14	3·28	2·57	3·43	5·42	3·44	42·22
Lairg	6·98	5·16	2·53	1·30	1·39	2·70	2·47	2·86	1·57	4·41	4·70	5·21	41·28
Ross and Cromarty—													
Fortrose . . .	4·00	2·67	1·37	0·94	1·73	2·61	1·45	3·42	2·06	2·46	2·70	1·80	27·21
Ardross Castle . .	6·71	4·53	3·89	1·64	3·17	3·29	1·03	5·26	2·71	4·39	5·35	4·28	47·15
Lochcarron . . .	12·87	7·68	4·24	3·03	1·56	5·02	7·70	4·66	4·89	9·79	9·34	7·88	78·61
Stornoway . . .	10·56	5·48	3·48	2·44	1·81	3·30	3·05	2·19	3·03	5·07	6·75	5·54	52·70
Inverness—Inverness .	5·22	2·60	2·45	0·96	2·06	3·42	1·80	3·96	3·07	2·74	3·42	2·21	33·91
Kingussie . . .	7·31	4·96	2·18	1·07	1·73	2·82	2·02	4·20	3·28	4·47	4·59	2·86	41·49
Fort-William . .	16·75	10·40	6·03	4·19	0·85	4·70	7·52	5·71	6·28	10·53	11·34	7·77	92·07
Kinlochquoich . .	22·22	16·42	7·47	4·26	1·24	9·80	15·06	6·88	7·80	15·08	13·11	11·37	130·71
Portree . . .	13·14	6·23	5·80	3·73	1·53	5·67	6·48	4·01	6·20	10·83	9·35	9·18	82·15
Nairn—Nairn (Delnies) .	3·43	2·26	1·57	0·88	1·85	2·90	1·86	3·17	2·98	2·31	3·37	1·83	28·41
Moray—Gordon Castle .	2·96	0·91	1·66	0·81	1·38	3·57	2·71	3·20	3·55	1·89	3·87	2·12	28·63
Grantown . . .	3·71	1·53	1·68	1·20	2·55	2·98	2·95	4·55	3·99	2·11	3·54	2·29	33·08
Banff—Banff . . .	2·92	1·10	1·70	1·36	1·30	2·71	1·85	2·54	2·86	1·87	3·62	2·43	26·26
Aberdeen—Fyvie Castle	3·02	0·77	3·01	2·47	1·87	3·32	1·37	3·55	3·19	2·39	4·55	2·78	32·29
Peterhead . . .	3·98	0·62	2·29	2·08	1·94	2·40	1·52	1·57	3·40	2·87	4·04	3·19	29·90
Aberdeen (King's Coll.)	3·80	0·64	3·57	2·57	1·60	3·28	2·09	2·31	2·66	2·83	3·93	2·80	32·08
Balmoral . . .	5·40	1·99	6·12	1·52	2·17	2·88	2·46	5·01	3·55	4·26	3·12	2·49	40·97
Kincardine—													
Balmakewan . . .	4·75	1·34	4·76	1·45	1·20	3·01	1·90	4·94	2·47	3·28	2·93	3·11	35·14
Angus—Montrose . .	4·18	0·98	3·71	0·96	1·20	2·89	1·86	3·60	2·18	3·15	2·17	2·48	29·36
Dundee (E. Necropolis)	4·43	1·83	4·67	1·01	1·36	4·08	1·09	5·18	2·52	3·80	3·26	2·30	35·53
Glamis Castle . .	7·00	1·90	5·86	1·05	1·46	3·61	0·76	4·84	2·69	6·21	3·54	5·23	44·15
Lednathie . . .	10·41	3·18	9·01	2·66	1·14	3·61	0·63	7·56	3·92	6·54	5·78	4·69	59·08
Perth—Blair Castle .	8·44	3·55	6·16	0·85	1·13	2·75	1·16	5·47	3·75	5·82	5·03	3·49	47·60
Crieff	10·16	3·54	6·39	1·58	2·18	4·46	1·55	6·04	3·67	6·17	5·02	4·68	55·44
Perth	6·25	2·28	4·53	0·65	1·63	3·68	0·83	3·61	2·84	3·74	2·73	3·11	35·88
Fife—Cupar . . .	6·49	1·98	4·29	0·79	1·43	4·93	0·82	5·17	2·40	4·15	3·25	3·50	39·20
Kirkcaldy . . .	5·41	2·62	2·27	0·88	1·37	5·24	1·81	4·75	2·80	3·21	3·10	2·78	36·24
Kinross—Loch Leven .	7·15	3·24	3·15	0·78	1·62	4·96	1·69	5·46	3·80	5·43	3·85	3·61	44·74
Clackmannan—													
Tillicoultry . . .	7·33	3·71	4·32	1·12	1·64	4·02	2·06	5·43	3·52	5·24	4·29	4·52	47·20
Argyll—Gruline (Mull) .	15·99	6·18	8·86	6·02	0·83	6·14	5·23	5·68	6·50	12·29	10·68	11·02	95·42
Oban	10·78	5·20	3·52	2·95	0·94	5·17	4·77	5·37	5·11	8·69	9·56	6·78	68·84
Glenorchy Manse . .	18·88	10·45	6·72	3·74	1·40	6·27	7·95	7·30	6·88	11·65	11·24	8·10	100·58
Inveraray . . .	21·28	10·32	4·82	3·44	1·29	7·14	7·47	7·79	7·34	11·96	15·10	10·09	108·04
Campbeltown . .	11·49	4·64	5·62	2·71	1·76	5·66	1·98	6·19	3·67	7·86	8·98	7·29	67·85
Bute—Rothesay . .	10·43	5·46	5·37	2·63	2·35	6·19	4·13	4·98	4·80	10·81	9·19	6·36	72·70
Stirling—Stirling . .	11·13	5·26	4·06	1·35	1·54	4·27	2·24	5·01	3·45	6·07	5·32	4·34	54·04
Dumbarton—Arrochar .	23·29	13·66	12·46	5·67	1·74	7·60	8·45	8·11	7·04	13·79	16·36	11·78	129·95
Helensburgh . .	12·74	5·82	5·21	2·61	2·03	6·24	4·15	4·72	4·89	8·48	9·25	6·08	72·22
Renfrew—Greenock .	15·52	6·41	5·58	3·46	1·97	7·01	4·70	5·38	5·79	10·98	9·87	8·28	84·95
Paisley	10·82	5·08	4·02	1·36	2·01	5·82	2·15	4·47	3·44	7·68	5·87	5·09	57·81
Ayr—Kilmarnock . .	9·67	3·38	2·04	1·28	1·80	4·24	2·52	4·31	4·00	6·72	5·48	3·70	49·14
Ayr	8·41	3·33	2·08	2·14	1·74	4·88	2·42	3·52	3·75	5·29	5·58	3·15	46·29
Muirkirk . . .	10·80	4·17	3·07	1·36	1·28	5·10	3·17	3·88	3·17	7·93	5·50	4·76	54·19
Pinmore . . .	9·15	4·08	5·86	2·09	1·28	4·38	2·56	5·28	3·15	7·94	8·02	6·11	59·90
Lanark—													
Glasgow (University) .	8·64	4·09	3·38	1·14	2·10	5·24	1·79	2·74	2·80	5·58	4·47	3·81	45·78
Biggar	7·56	3·51	2·58	0·99	1·88	4·72	2·75	4·32	2·64	4·49	3·73	2·50	41·67
Elvanfoot . . .	15·45	6·40	8·30	2·20	1·30	7·10	4·40	8·20	5·30	12·25	9·20	6·50	86·60
Linlithgow—													
Linlithgow . . .	7·59	5·67	2·43	1·03	1·74	5·14	2·18	4·61	3·00	4·62	4·14	3·99	46·14
Mid-Lothian—													
Edinburgh (University)	4·13	3·01	1·84	0·50	1·28	4·36	2·00	3·91	2·07	2·86	2·60	1·93	30·49
Gorebridge (Deanbank)	4·68	2·33	2·55	1·22	1·87	5·00	2·17	5·70	2·18	3·62	3·49	2·28	37 04
Oxenfoord Castle . .	4·08	1·96	2·23	0·55	0·86	4·92	2·82	3·11	1·63	2·86	2·79	1·31	28·62
Haddington—													
North Berwick . .	2·85	1·26	1·39	0·49	1·21	3·78	1·74	3·78	2·14	2·67	2·41	1·75	25·47
Stobshiels Reservoir .	3·06	1·28	2·46	0·84	1·95	5·93	1·74	5·61	2·25	3·67	3·21	1·11	33·11
Berwick—Duns Castle .	3·68	2·03	3·86	1·55	1·00	5·19	1·74	4·52	2·01	3·75	3·70	2·24	35·27
Coldstream (The Hirsel)	2·45	0·93	3·05	1·08	1·24	4·42	1·68	3·22	1·01	1·69	2·43	1·52	24·72
Peebles—West Linton .	7·76	3·88	2·05	1·03	1·70	4·88	2·98	5·61	3·22	4·27	3·61	3·50	44·49
Selkirk—Fairnilee . .	6·51	3·87	4·63	0·79	1·45	4·73	1·51	5·33	1·50	6·19	4·05	2·55	43·11
Roxburgh—													
Branxholme . . .	7·52	4·19	4·49	1·08	1·76	5·40	2·13	6·94	2·04	7·35	4·59	2·85	50·34
Kelso (Broomlands) .	2·87	1·47	2·71	0·87	1·10	3·93	1·58	3·48	1·18	2·89	2·28	1·39	25·75
Dumfries—Dumfries .	8·75	3·89	4·89	1·33	1·70	6·12	3·19	6·60	2·13	7·61	4·91	3·41	54·53
Moniaive (Glencrosh) .	11·24	4·70	5·93	2·40	1·58	7·04	2·45	7·65	2·82	10·12	7·63	5·44	69·00
Castlemilk . . .	10·91	4·39	4·83	0·79	1·17	5·62	4·34	8·33	2·88	8·05	6·53	4·62	62·46
Langholm . . .	14·65	6·15	6·61	1·46	2·07	7·61	3·65	9·66	3·46	9·54	7·88	5·62	78·36
Kirkcudbright—													
Dalbeattie (Kirkennan)	12·21	3·64	5·87	1·75	2·28	6·88	3·48	6·43	2·72	9·83	8·29	5·34	68·72
Cargen	11·83	5·17	5·96	1·91	2·10	7·36	3·97	6·87	2·84	9·25	6·87	4·48	68·61
Carsphairn (Shiel) .	18·14	6·99	8·35	2·89	1·61	9·66	3·40	9·18	4·21	13·29	13·71	8·41	99·79
Wigtown—Monreith .	7·75	3·33	5·44	1·85	2·28	5·31	3·25	4·41	1·89	9·71	7·13	4·50	56·85

AGRICULTURAL STATISTICS.—RETURNED UPON 4TH JUNE 1928—(*Compiled from the Government Returns*).

TABLE NO. 1.—ACREAGE UNDER CROPS AND GRASS IN EACH COUNTY OF SCOTLAND.

COUNTIES.	Total Acreage under Crops and Grass.	Arable Land.	Permanent Grass.	CORN CROPS.								Potatoes.	Turnips and Swedes.	Mangolds.	Sugar Beet.	Cabbage.	Rape.	Vetches or Tares (Seed).	Vetches, Tares, Beans, Mashlum, &c. (Fodder).	Small Fruit.	Rye-grasses and other Rotation Grasses and Clover.	Other Crops.	Bare Fallow.
				Wheat.	Barley, including Bere.	Oats.	Mixed Grain.	Rye.	Beans.	Peas.	Total.												
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres	Acres.	Acres.	Acres.	Acres.	Acres.
1. Aberdeen	624,077	575,421	48,656	12	11,394	177,869	14	59	22	48	189,418	7,827	78,591	14	42	150	130	15	2,499	239	295,881	281	534
2. Angus	244,269	214,771	29,498	12 027	12,048	55,280	252	346	14	10	79,977	18,650	29,550	14	112	186	219	..	617	1,256	83,922	195	73
3. Argyll	119,558	51,785	67,773	2	814	14,924	28	337	1	..	16,106	2,714	4,750	6	..	39	131	2	91	11	27,713	25	197
4. Ayr	308,416	128,266	180,150	1,324	77	34,533	2	11	184	9	36,140	8,628	6,608	233	..	251	782	1	986	258	74,071	230	78
5. Banff	156,824	144,442	12,382	14	6,645	44,181	49	51	39	6	50,985	1,892	19,087	2	12	18	65	22	553	12	71,726	12	56
6. Berwick	188,890	126,001	62,889	1,671	11,776	25,320	16	7	189	..	38,979	2,464	18,710	93	125	40	840	6	371	18	64,263	36	56
7. Bute	25,053	14,706	10,347	9	7	4,336	..	23	5	1	4,381	1,012	1,161	3	..	15	72	..	26	9	7,870	15	142
8. Caithness	104,146	79,907	24,239	..	533	27,018	..	..	..	1	27,552	1,091	10,427	..	..	14	10	3	219	1	40,351	40	199
9. Clackmannan	15,296	7,353	7,943	236	94	2,843	9	1	224	1	3,408	376	706	..	..	12	29	2	105	75	2,525	4	111
10. Dumbarton	45,552	20,840	24,712	363	5	6,153	11	11	17	..	6,560	2,260	1,358	12	..	50	197	..	99	73	10,148	33	50
11. Dumfries	242,325	120,956	121,369	50	63	33,834	30	44	..	3	34,024	3,319	13,960	159	..	116	756	..	60	58	68,215	134	155
12. East Lothian	108,925	82,611	26,314	5,170	12,931	14,608	..	..	103	173	32,985	8,017	11,634	341	445	818	480	7	355	245	26,560	593	131
13. Fife	238,522	160,878	77,644	12,310	11,094	40,461	34	456	249	8	64,612	16,525	20,887	33	1,230	191	777	25	636	280	55,619	143	420
14. Inverness	149,935	80,546	69,389	27	3,723	28,218	497	757	..	1	33,223	5,019	8,594	..	..	84	55	1	220	10	32,870	29	441
15. Kincardine	117,757	106,239	11,518	949	6,121	30,880	79	26	13	..	38,068	4,246	14,950	..	34	20	11	..	434	55	48,357	32	34
16. Kinross	34,056	21,097	12,959	267	99	6,179	..	13	..	..	6,558	1,161	2,246	..	..	18	141	..	52	11	10,889	1	20
17. Kirkcudbright	180,847	82,811	98,036	53	53	19,691	4	2	5	..	19,808	1,356	8,560	33	1	49	987	..	143	25	51,719	56	74
18. Lanark	240,652	120,994	119,658	1,945	74	34,344	24	12	..	9	36,408	6,175	8,999	19	1	458	1,248	6	447	1,666	64,680	520	367
19. Mid-Lothian	117,423	74,303	43,120	5,227	3,453	19,119	36	..	7	51	27,893	6,285	9.040	33	48	416	832	..	207	225	28,866	380	78
20. Moray	97,525	89,561	7,964	915	8,117	23,590	24	239	31	3	32,919	1,708	13,164	19	68	20	28	9	393	25	41,131	40	27
21. Nairn	25,321	23,439	1,882	..	1,937	6,278	4	23	5	..	8,247	275	3,740	..	10	8	1	1	52	1	11,070	8	26
22. Orkney	107,769	92,029	15,740	..	3,364	30,931	7	7	..	..	34,309	2,253	12,844	..	..	13	..	..	200	..	42,338	6	66
23. Peebles	50,981	21,645	29,336	..	59	5,239	..	..	..	2	5,300	331	2,631	..	..	17	526	..	105	28	12,697	9	1
24. Perth	321,147	214,760	106,387	7,787	2,442	62,939	87	457	589	7	74,308	18,277	22,866	20	132	146	992	5	1,058	3,043	93,014	64	835
25. Renfrew	81,088	31,468	49,620	1,722	4	8,697	6	2	39	2	10,472	8,372	1,853	3	..	116	169	..	58	142	15,158	93	32
26. Ross & Cromarty	137,454	108,284	29,170	1,030	5,721	31,561	18	189	5	1	38,525	6,916	13,410	8	..	185	52	31	483	9	48,345	68	252
27. Roxburgh	173,903	109,692	64,211	1,120	6,690	21,886	72	4	19	4	29,795	1,220	15,445	25	27	56	766	..	156	28	62,113	17	44
28. Selkirk	29,728	14,255	15,473	5	141	3,306	..	..	..	1	3,453	131	1,883	2	..	10	109	..	12	6	8,648	1	..
29. Shetland	26,098	12,791	13,307	..	553	6,037	..	8	..	..	6,598	1,994	980	..	..	605	..	..	14	..	1,998	6	596
30. Stirling	111,242	48,480	62,762	1,483	393	16,472	6	18	1,293	3	19,668	3,363	3,488	6	..	82	609	6	706	146	19,745	40	621
31. Sutherland	31,162	21,627	9,535	..	215	7,014	..	2	..	..	7,231	1,047	2,518	..	..	6	9	..	25	1	10,732	2	56
32. West Lothian	55,216	31,771	23,445	2,485	1,194	10,200	29	..	27	2	13,937	2,537	3,061	14	11	52	351	..	210	41	11,425	10	122
33. Wigtown	154,305	99,701	54,604	24	90	24,495	..	26	71	..	24,706	1,585	10,802	158	15	58	316	..	287	11	61,610	58	95
Total	4,665,462	3,133,430	1,532,032	58,227	111,924	878,436	1,338	3,131	3,151	346	1,056,553	144,026	378,003	1,250	2,313	4,319	11,690	142	11,879	8,006	1,506,269	3,181	5,799

TABLE No. 2.—TOTAL PRODUCE OF WHEAT, BARLEY, AND OATS, ACREAGE and YIELD per Acre in the Year 1928, compared with the YIELD for the Year 1927, and the AVERAGE of the Ten Years, 1918-1927, in each COUNTY of SCOTLAND.

COUNTIES.	WHEAT.								BARLEY, INCLUDING BERE.							
	Total Produce in 1923.		Acreage in 1928.	Yield per acre.				Average of the Ten Years, 1918-1927.	Total Produce in 1928.		Acreage in 1928.	Yield per acre.				Average of the Ten Years, 1918-1927.
				1928.		1927.						1928.		1927.		
	Qrs.	Tons.	Acres.	Bush.	Cwt.	Bush.	Cwt.	Bush.	Qrs.	Tons.	Acres.	Bush.	Cwt	Bush.	Cwt.	Bush.
Aberdeen	60	12	12	37.3	19.8	28.9	15.6	31.4	49,000	9,500	11,394	34.5	16.6	30.2	14.3	31.8
Angus	52,000	11,000	12,027	34.8	19.1	33.7	17.7	35.7	56,000	11,000	12,048	37.3	17.5	34.2	15.2	35.1
Argyll	10	2	2	38.0	20.0	..	..	..	3,400	650	814	33.8	16.0	31.5	14.6	34.2
Ayr	7,800	1,700	1,324	47.1	26.0	43-3	23.8	45.4	320	60	77	33.5	16.5	40.6	20.0	38.0
Banff	60	13	14	35.0	18.1	..	..	†30.1	32,000	6,200	6,645	39.0	18.7	40.7	19.2	39.3
Berwick	8,700	1,900	1,671	41.6	22.9	37.9	20.6	38.9	51,000	10,000	11,776	34.8	17.2	32.9	15.2	34.1
Bute	50	10	9	40.0	21.5	39.0	20.9	‡34 9	30	6	7	39.3	17.8	38.6	17.5	39.9
Caithness	..	..	..	..	..	..	..	..	2,600	460	533	39.0	17.4	35.2	15.6	34.5
Clackmannan	1,300	280	236	43.3	24.1	39.7	21.9	38.6	480	90	94	40.5	19.9	40.0	19.3	36.6
Dumbarton	1,700	370	363	37.8	20.2	35.4	18.4	36.0	20	4	5	36.0	17.4	30.0	13.9	35.6
Dumfries	200	50	50	37.3	20.4	34.9	19.3	38.2	270	50	63	33.7	15.5	34.8	15.9	38.2
East Lothian	28,000	6,100	5,170	42.5	23.8	43.3	24.0	43.4	73,000	14,000	12,931	45.0	22.4	45.0	21.7	45.3
Fife	57,000	13,000	12,310	37.3	20.4	30.2	15.7	36.3	57,000	11,000	11,094	41.2	19.9	31.9	14.0	39.4
Inverness	140	30	27	40.7	21.5	34.0	17.9	‡39.1	13,000	2,400	3,723	27.8	13.1	26.4	12.1	26.4
Kincardine	4,400	1,000	949	37.2	20.9	35.3	19.1	36.0	28,000	5,300	6,121	36.2	17.3	33.7	15.3	36.0
Kinross	1,300	290	267	38.6	21.6	37.8	20.5	37.9	480	90	99	38.8	18.2	32.0	15.4	34.5
Kirkcudbright	260	50	53	38.5	19.8	37.3	20.0	36.2	240	50	53	36.2	16.8	34.1	16.4	37.5
Lanark	9,400	2,000	1,945	38.8	20.5	36.6	18.7	35.2	300	50	74	32.1	14.7	32.2	14.4	33.3
Mid-Lothian	29,000	6,400	5,227	43.6	24.5	45.4	25.2	43.8	19,000	4,200	3,453	43.8	24.2	43.8	21.3	42.0
Moray	4,800	1,100	915	41.7	23.3	42.2	23.7	41.4	39,000	7,700	8,117	38.3	18.9	38.0	18.2	38.3
Nairn	..	..	..	..	..	..	..	§38.2	8,200	1,500	1,987	33.7	15.8	27.7	12.9	30.7
Orkney	..	..	..	..	..	..	..	..	18,000	3,200	3,364	43.3	18.8	33.7	14.2	31.0
Peebles	..	..	..	..	..	..	..	..	260	50	59	35.5	17.6	40.0	18.2	33.2
Perth	35,000	7,600	7,787	36.4	19.5	35.5	18.4	37.9	11,000	2,100	2,442	36.8	17.5	34.2	15.9	35.7
Renfrew	9,300	2,000	1,722	43.2	22.7	41.0	22.3	41.3	20	3	4	37.4	17.2	35.0	16.3	36.0
Ross and Cromarty	5,500	1,200	1,030	42.5	23.0	35.0	18.5	42.8	25,000	4.500	5,721	35.1	15.9	30.5	13.7	33.4
Roxburgh	5,500	1,200	1,120	39.6	22.3	37.9	20.7	38.1	31,000	6,100	6,690	36.4	18.1	31 7	14.7	35.5
Selkirk	20	5	5	36.0	20.3	..	..	*37.7	600	120	141	34.3	17.1	30.2	13.1	35.0
Shetland	..	..	..	..	..	..	..	..	2,300	420	553	33.0	15.2	30.8	14.2	27.9
Stirling	5,900	1,300	1,483	31.6	17.7	30.9	16.9	38.2	1,600	300	393	33.3	15.6	30.6	13.9	35.3
Sutherland	..	..	..	..	..	..	..	..	1,000	200	215	37.9	18.6	35.2	16.6	35.5
West Lothian	14,000	3,100	2,485	45.0	25.2	44.5	24.1	44.2	6,900	1,400	1,194	46.4	22.9	45.7	22.1	45.7
Wigtown	120	30	24	39.4	21.1	39.6	22.1	37.2	520	100	90	46.2	23.1	36.7	16.4	39.6
Total all Scotland	281,520	61,742	58,227	38.7	21.2	36.6	19.6	38.7	531,540	102,803	111,924	38.1	18.4	34.7	16.1	36.2

* Average of 7 years only. † Average of 5 years only. ‡ Average of 9 years only. § Average for 6 years only.

TABLE NO. 2—*continued.*

TOTAL PRODUCE OF WHEAT, BARLEY, AND OATS, ACREAGE and YIELD per Acre in the Year 1928, compared with the YIELD for the Year 1927, and the AVERAGE of the Ten Years, 1918-1927, in each COUNTY OF SCOTLAND.

COUNTIES.	OATS.							
	Total Produce in 1928.		Acreage in 1928.	Yield per acre.				Average of the Ten Years 1918-1927.
				1928.		1927.		
	Qrs.	Tons.	Acres.	Bush.	Cwt	Bush.	Cwt.	Bush.
Aberdeen	914,000	135,000	177,869	41.1	15.2	33.7	12.1	35.7
Angus	355,000	52,000	55,280	51.4	18.8	44.8	15.5	47.3
Argyll	71,000	10,000	14,924	38.2	13.8	36.2	12.7	35 9
Ayr	216,000	31,000	34,533	49.9	17.9	45.2	16.0	46.0
Banff	245,000	36,000	44,181	44.4	16.3	39.8	14.3	42.3
Berwick	127,000	19,000	25,320	40.1	14.8	34.8	12.6	38.2
Bute	23,000	3,400	4,386	43.0	15.6	40.3	14.2	41.6
Caithness	128,000	18,000	27,018	37.8	13.3	34.0	11.7	32.9
Clackmannan	20,000	2,900	2,843	54.7	20.5	39.8	14.3	40.7
Dumbarton	31,000	4,500	6,153	40.7	14.6	40.5	13.8	41.7
Dumfries	172,000	26,000	33,834	40.7	15.3	38.8	14.0	38.5
East Lothian	106,000	16,000	14,608	58.1	22.1	55.3	20.5	52.3
Fife	252,000	38,000	40,461	49.9	18.7	40.2	14.0	45.8
Inverness	111,000	15,000	28,218	31.5	10.5	27.2	8.7	28.3
Kincardine	181,000	27,000	30,880	46.9	17.7	44.2	16.3	43.0
Kinross	35,000	5,100	6,179	45.5	16.6	40.0	14.1	39.8
Kirkcudbright	94,000	13,000	19,691	38.1	13.5	33.3	11.5	34.4
Lanark	179,000	26,000	34,344	41.6	14.9	44.3	15.0	43.7
Mid-Lothian	127,000	19,000	19,119	53.2	20.0	49.6	18.4	46.8
Moray	126,000	19,000	23,590	42.7	16.3	40.8	14.9	42.1
Nairn	31,000	4,700	6,278	39.8	14.8	32.4	11.5	32.9
Orkney	152,000	21,000	30,931	39.3	13.3	37.3	12.6	32.0
Peebles	28,000	4,200	5,239	43.3	16.0	41.4	14.8	36.2
Perth	354,000	52,000	62,939	45.0	16.6	42.1	15.6	44.0
Renfrew	47,000	7,000	8,697	42.7	16.2	36.3	12.9	40.7
Ross and Cromarty	164,000	24,000	31,561	41.6	15.0	36.8	13.0	40.0
Roxburgh	119,000	18,000	21,886	43.3	16.1	36.9	13.1	37.2
Selkirk	15,000	2,200	3,306	36.7	13.3	29.4	9.4	32.1
Shetland	22,000	2,600	6,037	28.8	8.5	24.4	6.4	24.2
Stirling	105,000	16,000	16,472	50.3	19.4	52.4	19.0	45.3
Sutherland	33,000	4,900	7,014	37.5	13.9	36.1	13.4	33.5
West Lothian	71,000	10,000	10,200	55.8	20.6	53.2	19.8	51.0
Wigton	143,000	21,000	24,495	46.6	17.5	38.6	14.0	37.5
Total all Scotland	4,797,000	703,500	878,436	43.7	16.0	38.9	13.8	39.9

TABLE No. 3.—TOTAL PRODUCE OF BEANS AND POTATOES, ACREAGE and YIELD per Acre in the Year 1928, compared with the YIELD for BEANS for the Year 1927 and for POTATOES for the Years 1927 and 1926, and the AVERAGE of the Ten Years, 1918-1927, in each COUNTY of SCOTLAND.

COUNTIES.	BEANS.								POTATOES.					
	Total Produce in 1928.		Acreage in 1928.	Yield per acre.				Average of the Ten Years, 1918-1927.	Total Produce in 1928.	Acreage in 1928.	Yield per acre.			Average of the Ten Years, 1918-1927.
				1928.		1927.					1928.	1927.	1926.	
	Qrs.	Tons.	Acres.	Bush.	Cwt.	Bush.	Cwt.	Bush.	Tons.	Acres.	Tons.	Tons.	Tons.	Tons.
Aberdeen	80	20	22	29.2	16.5	17.0	8.9	‡10.9	55,000	7,827	7.0	5.1	6.5	6.6
Angus	80	20	14	44.0	24.8	40.0	21.1	36.6	143,000	18,650	7.6	4.7	5.6	6.4
Argyll	5	1	1	39.0	20.5	35.0	18.1	32.9	16,000	2,714	5.8	4.7	5.9	5.4
Ayr	760	170	184	33.2	18.5	38.0	19.2	37.1	76,000	8,628	8.8	7.8	8.3	8.0
Banff	130	30	39	25.7	13.3	18.3	9.8	22.4	12,000	1,892	6.6	5.4	5.8	5.8
Berwick	770	170	189	32.8	18.0	28.8	15.4	28.7	16,000	2,464	6.6	4.6	4.9	5.7
Bute	20	5	5	38.0	20.0	35.9	18.9	33.0	7,000	1,012	6.9	5.9	6.9	6.2
Caithness	..	..	..	..	..	..	..	..	7,300	1,091	6.7	4.4	6.4	5.3
Clackmannan	1,100	250	224	39.8	22.3	40.0	22.1	39.5	2,400	376	6.5	5.4	4.1	6.2
Dumbarton	60	12	17	28.0	14.3	29.4	15.3	28.0	15,000	2,260	6.5	5.9	7.6	7.2
Dumfries	..	..	..	..	..	..	..	†24.7	22,000	3,319	6.6	7.0	7.0	7.2
East Lothian	450	100	103	35.2	19.7	35.8	18.2	34.3	62,000	8,017	7.8	6.9	6.7	7.1
Fife	1,200	270	249	38.2	21.4	36.9	19.8	37.4	115,000	16,525	6.9	4.7	5.8	6.6
Inverness	..	..	..	..	..	..	..	§29.5	30,000	5,019	6.0	4.6	4.9	3.7
Kincardine	60	13	13	36.0	19.9	31.8	17.2	30.3	27,000	4,246	6.4	5.0	6.1	6.3
Kinross	..	..	..	..	..	38.0	20.4	*36.6	8,200	1,161	7.0	5.2	6.1	6.6
Kirkcudbright	20	5	5	35.2	19.2	34.5	19.1	33.6	11,000	1,356	8.1	6.9	6.7	6.8
Lanark	..	..	..	..	..	..	..	†31.0	41,000	6,175	6.7	5.7	6.5	7.9
Mid-Lothian	30	6	7	32.6	18.3	32.4	17.5	‡34.7	46,000	6,285	7.4	6.6	7.4	7.1
Moray	100	20	31	26.7	15.0	24.8	14.0	23.9	12,000	1,708	6.7	5.1	6.7	5.9
Nairn	20	5	5	31.0	18.3	24.0	12.5	24.0	1,500	275	5.4	3.3	4.5	4.6
Orkney	..	..	..	..	..	..	..	..	12,000	2,253	5.5	5.7	6.0	5.0
Peebles	..	..	..	..	..	..	..	..	2,600	331	7.7	6.9	6.6	6.7
Perth	2,600	550	589	35.1	18.6	30.5	15.8	33.7	122,000	18,277	6.6	4.3	5.9	6.4
Renfrew	210	40	39	41.9	32.2	40.0	21.4	40.6	30,000	3,372	9.0	7.1	8.3	8.0
Ross and Cromarty	14	3	5	22.0	11.4	16.0	8.3	*28.3	50,000	6,916	7.3	4.7	6.5	5.3
Roxburgh	70	15	19	28.4	15.8	27.4	15.2	27.8	7,800	1,220	6.4	5.4	4.8	6.1
Selkirk	..	..	..	..	..	..	..	..	800	131	6.1	5.5	5.7	6.2
Shetland	..	..	..	..	..	..	..	..	14,000	1,994	7.1	3.9	7.4	5.7
Stirling	5,100	1,200	1,293	31.7	18.4	29.5	16.6	34.9	29,000	3,363	8.6	8.2	9.1	7.6
Sutherland	..	..	..	..	..	..	..	..	6,500	1,047	6.1	4.6	6.1	5.4
West Lothian	140	30	27	40.0	22.5	39.0	20.1	36.2	20,000	2,537	7.9	7.0	7.6	7.4
Wigtown	260	60	71	28.9	16.5	24.0	13.1	26.6	12,000	1,585	7.2	6.9	6.0	6.2
Total	13,279	2,995	3,151	33.7	18.9	31.2	16.9	33.8	1,032,100	144,026	7.2	5.4	6.3	6.5

* Average of 7 years only. † Average of 6 years only. ‡ Average for 9 years only. § Average of 5 years only.

TABLE No. 4.—TOTAL PRODUCE of TURNIPS (including SWEDES) and MANGOLDS, ACREAGE and YIELD per Acre in the Year 1928, compared with the YIELD for the Years 1927 and 1926, and the AVERAGE of the Ten Years, 1918-1927, in each COUNTY of SCOTLAND.

COUNTIES.	TURNIPS AND SWEDES.						MANGOLDS.					
	Total Produce in 1928.	Acreage in 1928.	Yield per Acre.			Average of the Ten Years, 1918-1927.	Total Produce in 1928.	Acreage in 1928.	Yield per Acre.			Average of the Ten Years, 1918-1927.
			1928.	1927.	1926.				1928.	1927.	1926.	
	Tons.	Acres.	Tons.	Tons.	Tons.	Tons.	Tons.	Acres.	Tons.	Tons.	Tons.	Tons.
Aberdeen	1,293,000	78,591	16.5	14.8	15.6	15.9	190	14	13.6	8.0	18.0	13.4*
Angus	519,000	29,550	17.6	16.4	18.4	18.2	240	14	17.0	15.9	17.6	15.7
Argyll	74,000	4,750	15.6	13.5	15.6	15.1	90	6	14.0	17.4	15.9	12.4
Ayr	133,000	6,608	20.1	16.8	21.6	18.7	4,600	233	19.5	19.3	25.1	19.6
Banff	315,000	19,087	16.7	16.3	17.1	15.9	30	2	12.0	16.0	..	..
Berwick	376,000	18,710	20.1	16.9	18.9	19.0	1,300	93	14.5	15.8	17.5	16.9
Bute	19,000	1,161	16.1	13.2	15.6	15.1	50	3	15.7	13.0	..	14.5‡
Caithness	223,000	10,427	21.3	16.5	19.1	18.0	..	..	..	..	..	..
Clackmannan	13,000	706	18.2	14.6	14.3	16.3	..	..	..	..	..	..
Dumbarton	21,000	1,358	15.4	14.8	22.0	19.0	170	12	13.7	12.4	29.8	21.6
Dumfries	265,000	13,960	19.0	15.2	20.3	18.2	2,400	159	15.3	16.4	20.9	17.4
East Lothian	235,000	11,634	20.6	20.5	20.6	18.7	6,700	341	19.7	20.7	23.4	19.5
Fife	399,000	20,387	19.6	17.2	20.3	18.2	670	33	20.4	16.8	19.3	16.1
Inverness	119,000	8,594	13.8	11.4	12.7	13.2	..	..	..	..	12.0	13.5*
Kincardine	321,000	14,950	21.5	21.6	22.8	17.7	..	..	..	..	..	..
Kinross	36,000	2,246	16.0	16.2	15.5	17.4	..	..	..	..	..	..
Kirkcudbright	149,000	8,560	17.4	11.5	16.9	15.4	640	33	19.3	13.6	16.6	16.5
Lanark	176,000	8,999	19.5	15.7	20.3	19.1	330	19	17.1	17.4	19.1	14.5
Mid-Lothian	170,000	9,040	18.8	18.5	19.3	17.4	660	33	20.0	20.3	24.4	21.3
Moray	230,000	13,164	17.5	16.2	16.1	16.0	320	19	16.8	15.5	17.3	15.3
Nairn	53,000	3,740	14.1	11.2	12.4	13.0	..	..	..	..	..	..
Orkney	155,000	12,844	12.1	11.7	11.5	9.4	..	..	..	..	..	..
Peebles	50,000	2,631	18.9	19.1	19.7	18.2	..	..	..	20.0	..	19.0†
Perth	408,000	22,866	17.9	13.8	18.2	16.9	310	20	15.4	13.7	16.0	15.1
Renfrew	33,000	1,853	18.1	13.3	13.3	18.0	60	3	19.6	15.1	19.4	19.3
Ross and Cromarty	224,000	13,410	16.7	16.9	15.9	17.1	130	8	16.0	15.0	14.0	15.8
Roxburgh	237,000	15,445	15.4	14.6	14.8	15.2	300	25	12.0	9.6	12.2	13.2
Selkirk	27,000	1,883	14.6	15.4	17.2	16.5	20	2	10.0	..	15.3	..
Shetland	12,000	980	12.5	13.3	14.3	12.3	..	..	..	..	..	..
Stirling	93,000	3,488	26.7	19.2	24.2	21.7	150	6	24.5	19.8	29.5	22.4
Sutherland	44,000	2,518	17.6	16.7	16.4	14.3	..	..	..	10.0	..	..
West Lothian	58,000	3,061	18.9	18.8	20.4	19.5	230	14	16.4	20.0	25.1	23.3
Wigtown	177,000	10,802	16.4	15.1	20.	15.8	2,000	158	12.9	18.7	14.3	16.0
Total	6,650,000	378,003	17.6	15.8	17.6	16.6	21,590	1,250	17.3	18.1	20.7	18.0

* Average of 7 years only. † Average of 5 years only. ‡ Average of 9 years only.

TABLE No. 5.—TOTAL PRODUCE OF HAY from Rye-grass and other Rotation Grasses and Clover, also Total from Permanent Grass, ACREAGE, and YIELD per Acre in the Year 1928, compared with the YIELD for the Years 1927 and 1926, and the AVERAGE of the Ten Years, 1918-1927, in each COUNTY of SCOTLAND.

COUNTIES.	FROM CLOVER AND GRASSES.						FROM PERMANENT GRASS.					
	Total Produce in 1928.	Acreage in 1928.	Yield per Acre.			Average of the Ten Years, 1918-1927.	Total Produce in 1928.	Acreage in 1928.	Yield per Acre.			Average of the Ten Years, 1918-1927.
			1928.	1927.	1926.				1928.	1927.	1926.	
	Tons.	Acres.	Cwt.	Cwt.	Cwt.	Cwt.	Tons.	Acres.	Cwt.	Cwt.	Cwt.	Cwt.
Aberdeen	62,000	50,719	24.4	26.3	28.8	28.1	1,500	1,520	19.7	20.2	21.9	22.8
Angus	41,000	21,950	37.5	37.7	39.3	35.8	1,710	1,023	34.4	28.2	26.5	28.2
Argyll	18,000	11,928	30.7	29.8	32.7	28.7	22,780	15,714	28.6	30.6	33.1	29.1
Ayr	39,000	26,508	29.8	32.8	34.6	31.9	48,000	22,799	42.1	40.6	43.2	39.9
Banff	15,000	10,406	28.4	30.6	30.3	28.9	600	547	21.9	20.1	20.7	21.0
Berwick	15,000	11,536	25.3	33.8	41.6	32.2	3,400	3,020	22.4	24.7	31.7	24.3
Bute	4,200	2,413	34.6	36.1	39.2	37.3	960	580	33.0	35.0	35.7	34.0
Caithness	8,900	10,353	17.2	20.1	21.3	17.9	400	1,058	7.9	8.3	8.2	8.0
Clackmannan	2,700	1,161	47.0	40.9	44.3	40.0	3,270	1,379	47.7	44.2	33.6	43.5
Dumbarton	9,100	4,986	36.6	36.2	44.8	34.3	4,800	2,555	37.7	37.0	39.2	32.9
Dumfries	30,000	20,505	29.0	32.3	33.5	28.8	27,400	19,484	28.1	29.6	31.6	27.6
East Lothian	22,000	8,726	49.3	47.9	54.4	46.2	2,410	1,563	31.0	35.3	38.7	35.0
Fife	53,000	25,263	41.9	39.2	43.4	38.5	7,200	4,053	35.2	32.1	35.7	31.7
Inverness	12,000	11,131	22.2	22.4	22.5	21.5	8,500	9,640	17.7	18.6	18.2	19.7
Kincardine	21,000	12,618	32.8	32.8	36.9	34.3	610	468	25.9	25.8	25.7	30.8
Kinross	6,100	2,864	42.6	38.6	49.0	36.0	1,250	643	38.9	30.6	36.1	35.1
Kirkcudbright	13,000	10,647	24.8	28.1	29.3	25.5	16,900	13,075	26.2	26.1	26.2	24.3
Lanark	46,000	29,720	31.2	36.7	37.5	34.5	22,300	14,774	29.9	33.1	35.4	32.6
Mid-Lothian	28,000	11,226	50.0	48.5	50.8	44.4	3,000	1,527	39.1	37.5	40.3	35.3
Moray	5,900	5,713	20.7	19.6	21.5	22.5	120	118	20.0	16.2	15.6	19.0
Nairn	1,600	1,617	20.4	20.3	21.8	19.8	80	108	15.1	16.9	16.0	16.4
Orkney	19,000	10,920	34.6	26.3	29.4	18.2	650	966	13.4	14.7	14.7	7.9
Peebles	4,300	2,474	35.1	32.9	33.6	31.5	2,040	1,364	30.1	33.9	34.5	29.8
Perth	45,000	31,996	28.3	29.0	30.7	31.5	16,300	11,838	27.6	30.0	29.1	28.8
Renfrew	18,000	7,943	44.1	35.6	42.3	38.1	13,000	6,103	42.4	38.7	45.6	41.7
Ross and Cromarty	14,000	13,166	21.4	18.6	20.2	21.2	2,400	2,878	16.6	16.2	16.6	16.7
Roxburgh	18,000	10,262	35.1	33.9	39.0	32.1	10,590	6,243	35.3	38.3	35.6	29.9
Selkirk	2,400	1,409	34.3	45.0	43.5	34.4	3,620	1,984	36.5	48.4	47.0	33.9
Shetland	2,100	1,527	27.3	33.7	28.8	26.8	1,800	2,094	17.6	22.3	18.5	18.9
Stirling	21,000	10,011	42.6	44.5	47.3	36.9	19,700	9,059	44.4	44.5	47.3	42.3
Sutherland	4,800	4,612	20.8	21.0	20.0	19.3	1,400	1,550	18.0	17.9	17.5	14.4
West Lothian	15,000	6,373	47.4	48.7	45.7	43.3	2,270	1,068	41.8	39.2	42.0	39.4
Wigtown	10,000	8,070	25.0	30.8	30.4	28.6	5,900	5,505	21.6	26.4	28.8	29.3
Total	627,100	400,753	31.3	32.4	34.8	31.5	256,860	166,300	31.0	31.9	33.5	30.8

TABLE No. 6.—HAY from Permanent Grass:—TOTAL PRODUCE, ACREAGE, and YIELD PER ACRE, in 1928, in each COUNTY OF SCOTLAND, distinguishing HAY from TIMOTHY MEADOWS and HAY from OTHER MEADOWS.

COUNTIES.	TIMOTHY MEADOWS.			OTHER MEADOWS.		
	Total Produce in 1928.	Acreage in 1928.	Yield per Acre in 1928.	Total Produce in 1928.	Acreage in 1928.	Yield per Acre in 1928.
	Tons.	Acres.	Cwt.	Tons.	Acres.	Cwt.
Aberdeen	100	63	30·1	1,400	1,457	19·2
Angus	510	246	41·7	1,200	777	32·1
Argyll	780	468	33·4	22,000	15,246	28·5
Ayr	30,000	13,088	46·4	18,000	9,716	36·2
Banff	..	..	..	600	547	21·9
Berwick	100	87	23·2	3,300	2,933	22·4
Bute	70	43	34·3	890	537	33·0
Caithness	..	..	..	400	1,058	7·9
Clackmannan	2,800	997	56·4	470	382	24·8
Dumbarton	2,900	1,198	48·6	1,900	1,357	28·0
Dumfries	5,400	3,680	29·2	22,000	15,804	27·9
East Lothian	110	42	52·4	2,300	1,521	30·4
Fife	3,800	1,490	50·5	3,400	2,563	26·3
Inverness	..	..	..	8,500	9,640	17·7
Kincardine	50	18	50·0	560	450	25·0
Kinross	290	128	45·6	960	515	37·2
Kirkcudbright	3,900	2,395	32·1	13,000	10,680	24·9
Lanark	15,000	8,168	36·0	7,300	6,606	22·2
Mid-Lothian	1,700	647	52·1	1,300	880	29·6
Moray	..	..	..	120	118	20·0
Nairn	..	..	..	80	108	15·1
Orkney	..	..	..	650	966	13·4
Peebles	740	384	38·7	1,300	980	26·7
Perth	7,000	3,377	41·7	9,300	8,461	22·0
Renfrew	9,600	4,144	46·2	3,400	1,959	34·6
Ross and Cromarty	..	..	..	2,400	2,878	16·6
Roxburgh	590	318	37·1	10,000	5,925	35·2
Selkirk	220	120	36·5	3,400	1,864	36·5
Shetland	..	..	..	1,800	2,094	17·6
Stirling	16,000	6,261	52·5	3,700	2,798	26·2
Sutherland	..	..	..	1,400	1,550	18·0
West Lothian	1,700	671	49·5	570	397	28·9
Wigtown	1,200	986	25·1	4,700	4,519	20·9
Total	104,560	49,014	42·8	152,300	117,286	26·0

TABLE No. 7.—NUMBER OF HORSES, CATTLE, SHEEP, AND PIGS IN EACH COUNTY OF SCOTLAND AS RETURNED ON 4TH JUNE 1928.

COUNTIES.	HORSES (including Ponies).					CATTLE.							SHEEP.				PIGS.		
	Used solely for Agriculture, &c.*	Stallions.†	Unbroken Horses.		Other Horses.	Cows in Milk.	Cows in Calf, but not in Milk.	Heifers in Calf.	Bulls used for Service.	Other Cattle.			Ewes kept for Breeding.	Rams to be used for Service.	1 Year Old and above.	Under 1 Year.	Sows kept for Breeding.	Boars used for Service.	Other Pigs.
			1 Year & above.	Under 1 Year.						2 Years & above.	1 Year & under 2 Years.	Under 1 Year.							
1. Aberdeen	19,097	44	2,937	992	2,544	38,791	3,639	2,323	1,575	37,269	51,685	39,916	128,658	3,788	41,863	152,680	2,617	255	19,716
2. Angus	7,300	2	528	104	613	10,470	990	695	433	13,603	11,750	8,400	81,170	2,848	22,956	89,814	990	114	7,310
3. Argyll	3,791	8	431	150	461	17,670	2,394	1,939	885	7,984	11,448	13,753	362,695	11,013	106,860	267,098	453	66	4,006
4. Ayr	6,106	24	749	271	989	41,608	7,172	9,938	2,343	9,613	18,881	20,773	179,024	4,529	47,896	167,787	1,239	97	12,560
5. Banff	5,508	9	837	308	686	11,077	1,108	574	436	4,718	18,209	11,428	37,842	1,101	12,576	42,795	846	88	5,747
6. Berwick	3,409	7	366	83	493	3,436	721	983	300	6,926	8,432	4,695	142,530	3,656	39,222	196,943	771	96	4,393
7. Bute	827	4	128	27	126	2,659	312	501	183	1,109	1,958	2,065	20,015	577	6,736	15,821	57	9	681
8. Caithness	3,756	14	458	185	455	6,005	717	337	160	1,830	5,320	5,735	74,113	1,998	19,098	61,559	261	42	1,844
9. Clackmannan	384	..	85	19	77	1,070	222	131	55	634	884	511	5,912	255	1,486	6,097	123	14	619
10. Dumbarton	1,175	20	140	54	142	5,518	1,316	747	279	1,388	2,275	1,819	32,334	985	9,739	27,954	134	14	984
11. Dumfries	4,511	23	686	204	849	18,416	2,481	5,651	1,186	9,462	16,489	16,333	256,935	6,130	66,249	261,736	2,006	153	10,464
12. East Lothian	2,840	2	202	53	147	2,421	337	396	149	4,937	8,576	2,091	57,077	1,593	22,718	75,960	803	81	4,910
13. Fife	6,360	16	881	214	854	10,331	1,691	1,510	594	10,732	11,832	8,075	51,519	1,650	12,999	66,502	1,145	171	6,856
14. Inverness	5,798	24	619	357	558	16,226	3,739	1,223	567	4,576	9,847	12,668	243,912	7,037	81,919	182,903	315	40	1,881
15. Kincardine	8,485	1	348	91	491	5,910	517	389	248	5,526	8,091	5,776	27,804	819	5,207	31,276	417	53	2,970
16. Kinross	710	2	146	40	65	1,194	163	149	76	1,110	2,208	1,144	14,633	532	2,724	15,932	127	15	894
17. Kirkcudbright	3,041	16	579	195	432	16,980	1,188	4,959	990	9,759	13,790	11,464	169,331	4,565	48,907	169,761	1,213	137	12,576
18. Lanark	5,292	26	637	173	709	27,530	6,458	5,242	1,497	7,889	11,004	10,929	105,792	2,812	32,333	105,421	1,015	115	8,954
19. Mid-Lothian	2,676	6	162	52	408	7,294	852	496	204	2,967	3,051	1,748	72,269	1,767	30,206	86,622	1,774	176	13,366
20. Moray	3,262	15	617	141	345	6,067	481	369	240	3,819	7,586	5,316	22,745	579	6,648	22,993	514	59	4,168
21. Nairn	892	..	132	31	178	1,968	172	155	107	407	2,105	2,019	5,116	146	2,557	4,933	140	20	689
22. Orkney	4,717	9	452	209	817	8,919	1,217	839	235	3,840	9,505	9,094	19,239	541	4,630	24,994	292	42	2,334
23. Peebles	666	2	64	15	107	1,576	239	522	127	1,191	1,934	1,330	95,068	2,256	20,664	96,226	136	17	1,034
24. Perth	8,711	46	1,162	270	1,031	16,691	1,814	2,057	887	10,823	20,443	17,022	297,133	8,912	84,844	263,415	1,115	155	9,418
25. Renfrew	1,845	12	202	59	405	10,837	2,774	1,817	536	1,808	3,560	3,064	20,462	572	5,722	19,818	455	36	4,073
26. Ross & Cromarty	5,032	5	445	131	450	14,787	1,905	1,018	434	3,444	8,174	8,651	141,540	3,911	59,345	118,517	502	55	3,526
27. Roxburgh	2,929	5	299	70	635	4,701	815	950	328	7,305	6,436	4,824	233,063	5,458	67,772	278,043	592	66	3,515
28. Selkirk	450	1	31	4	72	1,100	133	226	78	588	1,048	849	86,705	1,826	19,566	85,978	78	11	500
29. Shetland	1,925	32	321	132	2,016	4,379	708	319	87	1,004	2,386	2,493	76,588	2,627	28,896	55,712	10	3	285
30. Stirling	2,791	13	419	113	387	8,742	1,921	1,824	563	7,393	7,942	4,929	55,658	1,426	15,453	52,428	382	46	2,860
31. Sutherland	1,721	4	93	24	154	3,879	629	212	70	810	1,917	2,032	89,739	2,465	47,825	78,237	64	9	596
32. West Lothian	1,467	5	231	65	170	3,978	767	584	208	2,162	1,888	1,478	8,329	285	4,758	10,504	271	39	2,223
33. Wigtown	3,389	26	776	257	424	24,491	1,222	3,209	1,001	7,950	9,829	11,217	60,215	1,858	15,373	60,813	1,353	163	14,385
Total	125,864	423	16,068	5,093	18,290	356,121	50,812	52,284	17,031	194,076	290,483	253,041	3,275,165	90,517	995,747	3,217,275	22,210	2,457	170,837

* Including Mares kept for breeding.

† Above two years old used, or intended to be used, for service.

TABLE NO. 8.—QUANTITY AND VALUE OF CORN, &c., imported into the United Kingdom in the undermentioned Years.

[*From Trade and Navigation Returns.*]

	Quantities.			Values.		
	1926.	**1927.**	**1928.**	**1926.**	**1927.**	**1928.**
Wheat from—	Cwt.	Cwt.	Cwt.	£	£	£
United States . .	31,182,926	35,619,001	23,662,487	20,435,707	21,914,763	13,186,725
Argentine Republic .	11,899,216	19,452,492	24,399,294	7,344,119	11,752,641	13,838,330
British India . .	2,694,687	5,010,319	1,548,412	1,781,066	3,184,274	938,277
Australia . . .	9,186,417	14,837,906	10,233,345	6,287,438	9,464,181	6,151,952
Canada . . .	35,669,532	32,181,355	41,005,492	23,327,785	19,685,849	22,083,030
Other countries . .	5,623,252	3,334,742	2,729,350	3,659,287	2,058,076	1,431,658
Total . .	96,256,030	110,435,815	103,578,380	62,835,402	68,059,784	57,629,972
Wheat, meal, and flour, from—						
France . . .	147,380	69,705	108,169	108,544	45,424	59,981
United States . .	2,732,751	2,915,726	1,913,686	2,340,858	2,343,607	1,419,113
Argentine Republic .	793,452	810,314	820,716	397,365	439,241	407,700
Australia . . .	1,290,038	1,776,514	980,568	1,061,901	1,377,515	696,962
Canada . . .	5,384,604	5,129,087	4,879,538	4,707,337	4,179,276	3,549,075
Other countries . .	312,851	259,561	224,264	190,447	170,096	133,174
Total . .	10,661,076	10,960,907	8,926,941	8,806,452	8,555,159	6,266,005
Barley	11,570,343	16,418,510	12,964,167	5,188,799	8,938,592	6,685,034
Oats	7,639,787	5,907,035	7,444,406	3,029,738	2,454,832	3,736,800
Peas, not fresh . .	1,331,825	1,463,204	1,701,952	1,559,633	1,764,042	1,907,280
Beans, not fresh . .	575,845	830,113	1,260,412	476,015	536,913	804,533
Maize	31,783,768	41,927,968	33,011,993	11,907,776	15,336,094	14,774,280
Maize products . .	1,666,168	1,890,247	2,888,630	747,737	848,071	1,390,195
Oat products . . .	772,753	523,560	697,071	777,661	615,046	793,834
Rice—						
From United States .	146,557	324,863	383,745	209,927	403,160	338,486
From British India .	877,617	724,970	695,331	617,097	506,308	471,338
From other countries	1,378,438	1,436,514	1,479,983	1,259,274	1,112,857	1,025,092
Other kinds of grain .	594,369	590,600	453,468	356,700	343,396	287,210
Other products . .	392,218	455,864	454,946	435,466	456,624	499,617
Malt	37,549	49,260	41,574	38,387	48,457	42,045
Farinaceous substances	963,747	1,196,189	1,166,907	866,677	990,661	985,656
Total of corn, &c. .	59,730,984	73,738,897	64,644,585	27,470,887	34,355,053	33,741,400

TABLE NO. 9.—RETURN OF THE AVERAGE PRICES OF WOOL in the Years 1927 and 1928.

Years.	Australian.	South African.	English Fleeces.
	Per lb. *s.* *d.*	Per lb. *s.* *d.*	Per lb. *s.* *d.* *s.* *d*
1927	1 7¼	1 6¼	1 4⅛ to 1 8⅛
1928	1 9½	1 6¾	1 10⅜ ,, 2 4⅛

TABLE No. 10.—QUANTITIES AND VALUES OF CORN, MEAT, FOOD PRODUCTS, AND ARTICLES AFFECTING AGRICULTURE, imported into the United Kingdom in the Year 1928, with the Corresponding Figures for 1926 and 1927.

[*From Trade and Navigation Returns.*]

	Quantities.			Values.		
	1926.	1927.	1928.	1926.	1927.	1928.
ANIMALS, LIVING :—	No.	No.	No.	£	£	£
Cattle	708,868	636,868	724,917	13,963,013	11,796,857	12,707,613
Sheep and lambs . . .	482,216	584,397	591,691	1,331,244	1,376,071	1,436,370
Pigs	231,309	394,740	318,286	1,687,687	2,337,369	1,890,372
Total value .	1,422,393	1,616,005	1,634,894	16,981,944	15,510,297	16,034,355
GRAIN, FLOUR, &c. :—	Cwt.	Cwt.	Cwt.	£	£	£
Wheat	96,256,030	110,435,815	103,578,380	62,835,402	68,059,784	57,629,972
Wheat meal and flour .	10,661,076	10,960,907	8,926,941	8,806,452	8,555,159	6,266,005
Barley	11,570,343	16,418,510	12,964,167	5,188,799	8,938,592	6,685,034
Oats	7,639,787	5,907,035	7,444,406	3,029,738	2,454,832	3,736,800
Peas, not fresh . . .	1,331,825	1,463,204	1,701,952	1,559,633	1,764,042	1,907,280
Beans, not fresh . . .	575,845	830,113	1,260,412	476,015	536,913	804,533
Maize or Indian corn . .	31,783,768	41,927,968	33,011,993	11,907,776	15,336,094	14,774,280
Maize products . . .	1,666,168	1,890,247	2,888,630	747,787	848,071	1,390,195
Oat products . . .	772,753	523,560	697,071	777,661	615,046	793,834
All other products . .	392,218	455,864	454,946	435,466	456,624	499,617
Malt	37,549	49,260	41,574	38,337	48,457	42,045
Rice—						
From United States . .	146,557	324,863	383,745	209,927	403,160	388,486
From British East Indies	877,617	724,970	695,331	617,097	506,308	471,338
From other countries .	1,378,438	1,436,514	1,479,983	1,259,274	1,112,857	1,025,092
Other kinds of grain . .	594,369	590,600	453,468	356,700	343,396	287,210
Farinaceous substances not elsewhere specified	963,747	1,196,189	1,166,907	866,677	990,661	935,656
Total value .	166,648,090	195,135,619	177,149,906	99,112,741	110,969,996	97,637,377
MEAT :—	Cwt.	Cwt.	Cwt.	£	£	£
Beef, salted	8,038	8,313	5,458	44,105	34,880	22,692
*Beef	13,304,413	13,416,627	12,266,980	30,770,312	29,486,988	31,042,486
*Mutton	5,368,650	5,522,559	5,645,883	17,776,706	17,494,847	19,468,265
Bacon	7,471,278	8,481,968	8,837,634	42,687,759	38,679,205	40,275,524
Hams	1,195,189	888,728	950,339	7,459,199	4,653,877	4,649,431
Pork, salted (not bacon or hams)	29,616	47,020	42,297	79,275	94,001	77,667
*Pork	912,113	504,572	634,310	4,488,806	2,166,156	2,485,947
Tinned, canned extracts, including tongue	1,316,799	1,253,864	1,276,897	6,214,218	6,432,215	6,742,687
All other kinds . . .	425,980	269,179	305,478	1,345,389	595,452	731,998
*Rabbits (dead) . . .	266,712	260,151	243,352	768,859	752,232	745,335
Total of dead meat .	30,298,788	30,652,981	30,208,628	111,634,628	100,389,853	106,242,032
DAIRY PRODUCE :—	Cwt.	Cwt.	Cwt.	£	£	£
Butter	5,818,840	5,818,611	6,120,823	48,283,312	48,204,721	52,113,194
Margarine . . .	1,333,454	1,185,225	1,102,788	4,687,514	4,045,193	3,582,441
Cheese	3,014,055	2,949,082	3,006,352	13,940,648	13,493,668	15,003,200
Total .	10,166,349	9,952,918	10,229,963	66,911,474	65,743,582	70,698,835

* Fresh, Chilled, and Frozen.

TABLE No. 10—*Continued.*

	Quantities.			Values.		
	1926.	1927.	1928.	1926.	1927.	1928.
POULTRY (alive or dead) .	..	..	..	£ 2,537,870	£ 2,979,584	£ 2,884,651
GAME (alive or dead) . .	..	..	..	94,968	94,633	122,226
EGGS in Shell . . .	Gt. Hunds. 22,125,395	Gt. Hunds. 24,340,350	Gt. Hunds. 26,467,410	15,369,434	15,914,257	17,766,531
EGGS not in Shell . . .	Cwt. 717,724	Cwt. 678,066	Cwt. 684,364	3,584,138	3,388,317	3,263,646
Total value .	..	..	..	21,586,410	22,326,791	24,037,054
FRUIT, VEGETABLES, &c. :—						
Apples	Cwt. 8,284,160	Cwt. 6,161,267	Cwt. 6,091,465	£ 9,561,229	£ 7,271,741	£ 7,840,867
Cherries	194,775	124,909	79,657	431,147	275,614	172,377
Plums	434,742	597,398	451,756	828,410	1,079,278	830,313
Pears	1,429,283	1,077,545	860,181	2,060,560	1,460,044	1,428,581
Grapes	506,357	718,157	840,002	1,622,781	1,936,796	2,018,828
Oranges	7,973,275	7,898,374	7,774,702	7,664,466	8,593,440	7,925,041
Lemons, Limes, &c. . .	1,316,277	1,248,747	1,128,199	1,102,208	1,187,167	1,251,479
Unenumerated . . .	996,502	1,158,773	1,279,712	1,851,237	2,176,094	2,274,043
Bananas	Bunches. 13,546,084	Bunches. 12,696,115	Bunches. 12,966,024	6,047,562	5,750,243	5,608,909
Onions	Bushels. 10,214,621	Bushels. 9,895,394	Bushels. 10,154,242	2,042,115	2,071,504	2,463,010
Potatoes	Cwt. 6,776,232	Cwt. 5,831,557	Cwt. 9,521,789	3,646,491	3,941,501	4,915,321
Tomatoes	2,301,984	2,332,046	2,804,425	4,065,750	4,262,811	4,417,600
Vegetables, unenumerated (raw)	..	..	..	1,519,009	1,511,028	1,563,839
Total value .	..	..	..	42,442,965	41,517,261	42,710,228
OTHER ARTICLES :—						
Lard	Tons. 112,710	Tons. 119,852	Tons. 122,365	£ 8,615,611	£ 7,585,423	£ 7,506,412
Wool—sheep and lambs' .	Centals. 8,114,409	Centals. 8,219,899	Centals. 7,807,141	62,586,574	59,774,149	60,566,674
Wood and timber—						
Hewn (pit-props or pit-wood)	Loads. 1,582,444	Loads. 2,864,493	Loads. 2,596,886	2,987,574	5,457,824	4,779,080
Sawn soft	4,771,058	6,025,932	4,605,723	21,914,630	28,239,995	21,440,976
Staves	106,118	104,159	101,542	863,756	739,871	680,739
Oilseed-cake (not sweetened)	Tons. 507,581	Tons. 497,518	Tons. 382,365	3,851,526	3,942,221	3,545,439
Seeds—						
Clover and grass . .	Cwt. 318,217	Cwt. 322,966	Cwt. 264,606	966,008	975,340	734,507
Cotton	Tons. 539,745	Tons. 586,646	Tons. 574,535	4,620,374	4,919,074	5,622,859
Flax or linseed . .	360,843	352,951	348,567	5,688,344	5,608,357	5,499,412
Rape	16,208	8,393	36,939	305,358	164,659	659,221
Soya beans	45,958	83,121	192,438	534,207	929,735	2,212,485
Bones (whether burnt or not)	4,073	4,536	4,785	30,629	35,264	41,036
Guano	18,286	10,427	5,644	162,957	82,737	49,964
Basic slag	48,211	79,346	67,710	124,366	195,736	163,642
Superphosphates . . .	135,911	167,380	127,216	357,791	414,040	306,204
Phosphate of lime and rock phosphate	292,254	404,396	274,623	422,906	577,735	378,009
Nitrate of soda (cubic nitre)	Cwt. 789,029	Cwt. 1,570,801	Cwt. 1,552,589	491,178	945,092	831,930
Cotton, raw of 100 lb.	Centals. 17,402,820	Centals. 15,483,393	Centals. 15,057,681	82,816,596	66,009,269	79,123,838
Hemp	Tons. 84,574	Tons. 101,497	Tons. 93,901	3,516,452	4,183,230	3,477,003
Flax	43,154	47,705	33,389	3,579,198	3,603,382	3,174,205
Hides untanned—						
Dry	Cwt. 525,365	Cwt. 722,086	Cwt. 809,252	2,288,484	3,322,211	4,882,847
Wet	1,006,667	810,282	692,792	3,561,238	3,091,386	3,448,199
Petroleum	Gallons. 1,375,658,465	Gallons. 1,386,320,290	Gallons. 1,609,620,388	38,612,079	38,687,287	33,307,035

TABLE No. 11.—QUANTITY AND VALUE OF DEAD MEAT imported into the United Kingdom in the undermentioned Years.

	Quantities.			Values.		
	1926.	1927.	1928.	1926.	1927.	1928.
BACON, from—	Cwt.	Cwt.	Cwt	£	£	£
Sweden	258,448	473,861	441,066	1,420,998	2,037,571	1,868,732
Denmark	3,641,578	5,090,785	5,367,395	21,676,823	23,351,251	25,242,071
Netherlands	619,423	796,746	1,055,765	3,208,739	3,798,964	4,610,486
United States	1,189,247	641,438	537,744	6,334,062	2,829,284	2,171,040
Irish Free State	434,117	450,885	554,666	2,765,610	2,384,823	2,756,378
Canada	869,879	503,084	306,795	5,009,143	2,238,950	1,370,533
Other countries	458,586	525,169	574,203	2,272,384	2,088,362	2,261,284
Total	7,471,278	8,481,968	8,837,634	42,687,759	38,079,205	40,275,524
BEEF (salted), from—						
United States	6,829	5,058	2,646	40,165	27,442	15,688
Other countries	1,209	3,255	2,812	3,940	7,438	7,004
Total	8,038	8,313	5,458	44,105	34,880	22,692
BEEF (fresh and refrigerated)—						
Denmark	24,988	..	..	131,084	..	..
United States	84,822	78,020	40,764	319,212	321,151	212,160
Uruguay	961,237	585,112	773,204	2,146,929	1,303,224	1,947,597
Argentine Republic	10,404,988	11,548,413	9,412,304	24,454,515	25,355,579	24,283,148
Australia	1,148,978	642,743	1,015,816	2,329,102	1,299,485	2,222,217
New Zealand	540,828	324,260	458,721	1,043,928	629,263	955,377
Other countries	138,572	238,079	566,171	345,542	578,286	1,421,987
Total	13,304,413	13,416,627	12,266,980	30,770,312	29,486,988	31,042,486
HAMS, from—						
United States	1,000,362	716,104	759,655	6,211,585	3,718,808	3,702,274
Canada	162,716	133,723	115,362	1,048,840	715,341	575,480
Other countries	32,111	38,901	75,322	198,774	219,738	371,677
Total	1,195,189	888,728	950,339	7,459,199	4,653,877	4,649,431
TINNED, CANNED EXTRACTS—						
Beef	1,116,793	1,039,512	1,061,756	5,141,302	5,035,135	5,301,574
Mutton	40,343	48,780	20,367	182,222	196,058	85,389
Pork	73,634	104,864	123,817	642,382	1,011,839	1,102,708
,, Other descriptions	86,029	60,708	70,957	248,812	189,188	253,016
Total	1,316,799	1,253,864	1,276,897	6,214,218	6,432,215	6,742,687
ALL OTHER KINDS—						
Tinned or Canned	7,385	9,378	15,460	35,091	53,784	75,692
Salted	755	853	221	2,254	1,810	467
Other descriptions	417,840	258,948	289,797	1,308,044	539,858	655,839
Total	425,980	269,179	305,478	1,345,389	595,452	731,998
MUTTON (fresh and refrigerated)—						
Netherlands	33,221	..	..	171,477	..	..
Uruguay	318,369	317,252	402,815	838,462	811,274	1,100,889
Argentine Republic	1,269,543	1,536,483	1,511,468	3,638,362	4,235,864	4,672,781
Australia	750,374	624,817	548,227	2,521,889	1,958,766	1,820,259
New Zealand	2,680,992	2,726,972	2,795,079	9,829,979	9,631,320	10,660,534
Other countries	315,651	317,035	388,294	776,537	858,123	1,213,802
Total	5,868,650	5,522,559	5,645,883	17,776,766	17,494,847	10,468,265
PORK (salted), from—						
Denmark	17,442	32,982	29,407	21,911	39,282	33,771
United States	8,652	10,842	10,579	42,860	46,440	37,019
Other countries	3,522	3,196	2,311	14,504	8,279	6,877
Total	29,616	47,020	42,297	79,275	94,001	77,667
PORK (fresh and refrigerated)—						
Netherlands	381,580	..	..	1,875,565	..	..
Irish Free State	202,584	317,339	387,493	1,084,848	1,347,861	1,549,361
New Zealand	51,136	86,227	121,658	226,189	333,381	406,010
Argentine Republic	86,052	44,658	57,803	871,625	201,768	229,841
United States	90,490	38,752	58,078	515,832	202,109	261,105
Other countries	100,271	17,596	9,278	464,747	81,037	39,630
Total	912,118	504,572	634,810	4,488,806	2,166,156	2,485,947
RABBITS (dead), from—						
Belgium	33,347	36,701	45,500	172,000	186,846	217,198
Irish Free State	33,851	28,489	26,786	101,091	84,873	82,466
Australia	180,237	176,933	146,319	488,063	419,798	365,907
New Zealand	12,431	6,279	11,619	31,558	15,862	27,916
Other countries	6,846	11,749	13,128	26,147	44,853	51,848
Total	266,712	260,151	243,352	768,859	752,232	745,335
Total of dead meat	30,298,788	30,652,981	30,208,628	111,634,628	100,389,853	106,242,032

TABLE No. 12.—QUANTITIES AND VALUES OF BUTTER, MARGARINE, CHEESE, AND EGGS imported into the United Kingdom in each Year from 1926 to 1928 inclusive.

[*From Trade and Navigation Returns.*]

	Quantities.			Values.		
	1926.	**1927.**	**1928.**	**1926.**	**1927.**	**1928.**
BUTTER from—	Cwt.	Cwt.	Cwt.	£	£	£
Russia . .	262,291	350,422	336,252	1,924,185	2,595,180	2,656,372
Finland . .	186,591	205,177	198,883	1,556,870	1,687,345	1,737,023
Sweden . .	154,072	165,951	175,570	1,327,190	1,415,620	1,549,557
Denmark .	1,906,495	1,994,764	2,016,045	17,166,480	17,646,132	18,613,677
Netherlands .	150,442	170,235	129,445	1,330,281	1,407,246	1,094,863
France . .	29,971	65,994	69,452	239,149	515,121	543,660
United States.	4,654	672	2,151	36,350	5,818	17,154
Argentine Republic . .	514,197	420,058	367,465	3,862,998	3,301,769	2,907,032
Irish Free State	496,245	586,485	559,167	3,835,067	4,560,157	4,529,496
Australia .	752,088	488,721	873,000	5,759,695	3,836,345	6,862,490
New Zealand .	1,153,896	1,252,475	1,227,471	9,607,459	10,320,248	10,274,286
Canada . .	63,609	423	1,646	502,811	3,613	13,805
Other countries	144,289	117,234	164,276	1,134,777	910,127	1,313,779
Total .	5,818,840	5,818,611	6,120,823	48,283,312	48,204,721	52,113,194
MARGARINE from—	Cwt.	Cwt.	Cwt.	£	£	£
Netherlands .	1,273,217	1,159,163	1,076,492	4,490,634	3,954,108	3,489,502
France . .	5,943	4,083	4,305	22,271	14,592	15,241
Irish Free State	49,552	16,515	16,121	158,036	59,806	58,706
Other countries	4,742	5,464	5,870	16,573	16,687	18,992
Total .	1,333,454	1,185,225	1,102,788	4,687,514	4,045,193	3,582,441
CHEESE from—	Cwt.	Cwt.	Cwt.	£	£	£
Netherlands .	189,991	228,066	228,507	849,279	1,003,390	961,701
Italy . .	141,218	141,446	141,560	679,812	657,805	658,806
United States.	13,199	17,193	5,603	62,112	77,207	29,987
Australia .	46,985	35,493	73,770	224,290	155,850	368,117
New Zealand .	1,496,901	1,611,869	1,555,527	7,053,025	7,173,947	7,592,704
Canada . .	1,056,729	843,943	919,915	4,657,201	4,007,275	4,903,951
Other countries	69,032	71,072	81,470	414,929	418,194	487,934
Total .	3,014,055	2,949,082	3,006,352	13,940,648	13,493,668	15,003,200
EGGS from—	Great Hundreds.	Great Hundreds.	Great Hundreds.	£	£	£
Russia . .	774,365	1,586,487	1,766,845	438,470	800,646	867,841
Denmark .	5,625,380	5,679,640	5,329,669	4,680,503	4,592,587	4,387,146
Poland (including Dantzig)	2,721,512	3,387,956	2,561,969	1,370,652	1,547,506	1,255,905
Netherlands .	1,985,416	2,359,895	2,723,767	1,595,902	1,711,810	2,102,899
Belgium . .	1,940,915	2,141,321	2,907,901	1.391,805	1,535,931	2,131,995
France . .	588,711	429,509	1,658,881	367,411	320,958	1,080,634
Italy . .	203,221	87,407	57,616	173,911	74,512	44,305
Egypt . .	672,167	668,544	809,638	293,141	290,609	350,624
China . .	1,232,305	681,011	945,880	685,804	395,177	557,955
United States.	60,879	92,880	91,789	43,948	64,556	72,885
Irish Free State	4,427,769	5,051,523	5,177,136	2,879,192	3,126,638	3,246.912
Australia .	335,470	122,172	266,977	312,912	107,049	233,589
Canada .	156,350	42,099	83,323	133,878	38.352	64,841
Other countries	1,400,935	2,009,906	2,086,019	1,001,905	1,307,926	1,369,000
Total .	22,125,395	24,340,350	26,467,410	15,369,434	15,914,257	17,766,531

TABLE No. 13.—NUMBER AND VALUE OF LIVE CATTLE, SHEEP, AND PIGS imported into the United Kingdom in the undermentioned Years. [*From Trade and Navigation Returns.*]

	Number.			Value.		
	1926.	**1927.**	**1928.**	**1926.**	**1927.**	**1928.**
CATTLE, from—				£	£	£
Irish Free State . .	628,918	629,001	724,372	11,875,434	11,580,426	12,691,550
Canada	79,083	7,629	405	2,064,053	211,085	13,263
United States . .	688	..	..	18,991	..	..
Other countries . .	179	198	140	4,535	5,346	2,800
Total . . .	708,868	636,828	724,917	13,963,013	11,796,857	12,707,613
SHEEP AND LAMBS, from—						
Irish Free State . .	482,216	584,397	591,691	1,331,244	1,376,071	1,436,370
Other countries . .	..	..	..	..	..	..
Total . . .	482,216	584,397	591,691	1,331,244	1,376,071	1,436,370
PIGS, from—						
Irish Free State . .	229,939	394,740	318,286	1,678,407	2,337,369	1,890,372
Other countries . .	1,370	..	..	9,280	..	..
	231,309	394,740	318,286	1,687,687	2,337,369	1,890,372

TABLE No. 14.—NUMBER OF HORSES, CATTLE, SHEEP, AND PIGS imported into Great Britain from Ireland in each of the Years 1922-1928.

	1922.	**1923.**	**1924.**	**1925.**	**1926.**	**1927.**	**1928.**
†HORSES :—							
Stallions . .	347	444	400	396	411	457	480
Mares . .	11,445	11,487	12,760	7,356	5,209	4,655	4,290
Geldings . .	11,553	11,474	13,060	7,566	5,954	5,855	4,956
Total . .	23,345	23,405	26,220	15,318	11,574	10,967	9,726
CATTLE : Oxen, Bulls, and Cows :—							
Fat . . .	420,308	283,666	345,167	246,829	257,934	284,498	319,983
Store . . .	480,697	459,503	629,016	456,354	393,161	348,723	419,682
Other cattle .	46,295	43,236	62,970	40,936	46,607	53,679	65,267
Calves . .	30,955	26,315	40,553	36,573	22,742	25,892	49,255
Total . .	978,255	812,720	1,077,706	780,692	720,444	712,792	854,187
SHEEP :—							
Sheep . . .	337,032	156,970	277,848	167,789	216,502	273,383	269,675
Lambs . .	377,731	292,182	363,746	268,653	306,860	367,660	401,062
Total . .	714,763	449,152	641,594	436,442	523,362	641,043	670,737
PIGS :—							
Fat . . .	128,504	314,816	179,611	55,883	185,565	338,961	293,355
Store . . .	205	3,425	6,389	2,363	1,698	4,871	1,492
Total . .	128,709	318,241	186,000	58,246	187,263	343,832	294,847

† Not including Army Horses.

EDINBURGH CORN MARKET.

STATEMENT SHOWING THE PRICES OF WHEAT, BARLEY, AND OATS FOR THE YEAR 1928.

The offering of grain by farmers and others in the area of the Market was not resumed during the year except for the exposure of a few samples of Wheat and Oats at intervals. It is hoped that advantage will be taken of the privilege afforded to farmers and merchants of offering grain in the open market, as undoubtedly it enables them to secure the market value, and gives a desirable indication of the true value of the various grains.

The Corn Sales Act of 1921 provides that all sales are to be effected by weight only, and expressed in terms of or by reference to the hundredweight of 112 lb. Experience has proved it to be convenient to quote at a price per 4½ cwt. for Wheat, 4 cwt. for Barley, and 3 cwt. for Oats.

The following statement gives a record of the year's proceedings in Edinburgh Corn Market.

1928.		WHEAT, per 4½ cwt.				BARLEY, per 4 cwt.				OATS, per 3 cwt.			
		Highest.		Lowest.		Highest.		Lowest.		Highest.		Lowest.	
		s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
January	4	48	0	47	0	52	6	35	0	30	6	25	0
"	11	47	0	46	0	52	6	36	0	31	0	27	0
"	18	47	0	46	0	52	6	36	0	31	6	24	0
"	25	47	6	46	0	52	6	35	0	32	0	27	0
February	1	47	0	40	0	50	0	36	0	32	0	27	0
"	8	46	6	40	0	50	0	34	0	31	6	27	6
"	15	46	6	40	0	47	0	35	0	31	6	27	6
"	22	46	0	40	0	40	0	35	0	32	0	27	6
"	29	46	0	40	0	52	0	36	0	32	6	28	6
March	7	46	0	40	0	51	0	35	0	33	6	30	0
"	14	46	0	41	0	52	0	36	0	35	6	31	6
"	21	46	0	40	6	46	0	38	0	37	6	32	6
"	28	47	0	40	0	45	0	40	0	38	0	34	0
April	4	47	0	42	0	51	0	39	0	39	6	36	0
"	11	48	0	42	0	51	0	39	0	40	0	36	0
"	18	49	0	44	0	52	0	40	0	41	0	37	0
"	25	52	0	46	0	52	0	41	0	42	0	38	0
May	2	52	6	48	0	49	0	42	0	42	6	38	6
"	9	54	0	53	0	48	0	44	0	43	0	38	6
"	16	53	0	48	0	48	0	44	0	43	0	37	6
"	23	52	6	43	6	48	0	44	0	43	0	37	0
"	30	50	6	46	0	46	0	38	0	41	6	36	0
June	6	48	0	44	0	45	0	38	0	41	0	35	0
"	13	46	0	43	0	46	0	38	0	40	0	35	0
"	20	45	0	40	0	44	0	36	0	38	6	35	0
"	27	46	0	40	0	43	0	37	0	38	6	35	0
July	4	47	0	43	0	42	0	37	0	37	6	35	0
"	11	47	0	43	0	42	0	37	0	38	6	34	0
"	18	47	0	44	0	42	0	37	0	38	6	34	0
"	25	46	0	44	0	42	0	37	0	38	6	33	0
August	1	45	6	40	0	42	0	37	0	37	0	33	0
"	8	43	6	42	6	..	..	..	..	36	6	31	0
"	15	43	6	38	0	..	..	..	..	35	0	32	0
"	22	42	6	36	0	..	..	..	..	35	6	30	0
"	29	42	0	38	0	..	..	..	..	34	0	33	0
September	5	40	0	38	0	..	..	..	..	34	0	32	0
"	12	41	6	40	0	42	0	38	0	34	0	30	0
"	19	43	0	42	0	42	0	35	0	29	0	27	6
"	26	43	6	37	0	42	0	35	0	26	0	23	6
October	3	43	0	36	0	40	0	32	0	26	0	23	0
"	10	43	0	32	0	41	0	31	0	26	0	23	6
"	17	44	0	34	0	42	0	32	0	26	6	24	6
"	24	43	0	40	0	42	0	32	0	26	9	25	0
"	31	43	6	40	0	43	0	32	0	26	9	25	0
November	7	43	6	38	0	42	0	30	0	26	9	24	6
"	14	50	0	43	0	48	0	28	0	26	9	24	6
"	21	44	6	38	0	42	0	32	0	26	6	24	0
"	28	44	6	39	0	42	0	30	0	26	3	23	6
December	5	44	6	43	6	42	0	31	0	25	9	23	0
"	12	44	0	40	0	42	0	28	0	26	0	23	0
"	19	44	0	40	0	41	0	29	0	26	6	23	6
"	26	44	0	40	0	41	0	30	0	26	6	24	0

PRICES OF SHEEP SINCE 1818.

TABLE No. 1.—CHEVIOT SHEEP.

Year.	Wethers.					Ewes.					Lambs.				
	s.	d.		s.	d.	s.	d.		s.	d.	s.	d.		s.	d.
1818	28	0	to	30	0	not quoted.					8	0	to	10	0
1819	25	0	"	27	0	15	0	to	17	0	10	6	"	12	0
1820	20	0	"	25	0	16	0	"	17	0	10	0	"	11	0
1821	18	0	"	20	0	14	0	"	16	0	7	6	"	8	0
1822	12	6	"	13	0	8	0	"	8	6	4	6	"	0	0
1823	13	6	"	18	0	7	0	"	10	6	5	6	"	6	0
1824	14	0	"	19	0	7	0	"	9	0	4	6	"	6	0
1825	29	0	"	32	0	15	0	"	19	0	9	0	"	10	6
1826	17	6	"	21	6	13	0	"	15	0	7	0	"	7	6
1827	15	0	"	24	0	not quoted.					7	0	"	8	0
1828	18	0	"	27	6	12	0	to	15	0	7	0	"	8	3
1829	18	0	"	24	0	12	6	"	14	0	7	0	"	8	6
1830	15	0	"	21	0	8	0	"	11	0	6	0	"	6	9
1831	18	0	"	25	0	9	0	"	13	0	7	0	"	8	0
1832	19	0	"	24	0	11	0	"	16	0	7	0	"	9	0
1833	22	0	"	31	0	13	6	"	20	0	8	0	"	11	3
1834	22	0	"	31	0	13	6	"	21	0	9	0	"	11	6
1835	22	0	"	27	6	18	0	"	20	6	8	0	"	11	0
1836	24	0	"	31	6	16	0	"	19	0	10	0	"	14	0
1837	19	0	"	28	0	14	0	"	19	0	10	0	"	13	0
1838	23	0	"	30	6	17	0	"	22	0	12	0	"	14	0
1839	23	0	"	31	0	14	0	"	19	0	0	0	"	13	0
1840	24	0	"	33	0	15	0	"	23	0	7	0	"	11	6
1841	23	0	"	30	0	14	0	"	22	0	8	0	"	12	0
1842	22	6	"	28	0	13	0	"	17	0	7	6	"	10	0
1843	19	0	"	25	0	8	0	"	12	0	5	0	"	8	0
1844	21	0	"	29	0	10	0	"	16	0	8	0	"	10	6
1845	23	0	"	38	0	13	0	"	20	0	8	0	"	13	0
1846	24	0	"	33	6	14	6	"	21	6	10	0	"	14	6
1847	24	0	"	35	0	18	0	"	24	0	11	6	"	15	0
1848	23	0	"	34	6	18	0	"	28	0	11	6	"	15	0
1849	21	0	"	30	2	12	0	"	21	0	0	0	"	14	0
1850	20	6	"	29	6	12	0	"	20	0	8	0	"	13	0
1851	21	6	"	31	0	13	0	"	21	0	8	9	"	14	0
1852	21	0	"	32	0	15	0	"	23	0	8	0	"	14	0
1853	26	6	"	38	0	17	0	"	28	6	9	0	"	17	0
1854	25	0	"	36	0	17	0	"	26	0	9	0	"	16	6
1855	23	6	"	36	0	16	0	"	25	0	10	0	"	17	0
1856	22	0	"	35	6	15	6	"	24	0	10	0	"	15	0
1857	24	0	"	36	0	14	6	"	26	0	10	6	"	14	6
1858	24	0	"	34	6	14	0	"	24	6	10	6	"	14	0
1859	25	0	"	34	6	16	0	"	25	0	10	3	"	14	9
1860	26	0	"	38	0	17	6	"	27	6	12	6	"	17	6
1861	25	0	"	38	6	16	0	"	28	0	9	0	"	16	0
1862	27	0	"	37	6	17	6	"	28	0	10	0	"	16	0
1863	25	0	"	38	6	19	0	"	28	6	10	6	"	16	0
1864	31	0	"	41	0	21	0	"	31	6	14	0	"	18	0
1865	32	6	"	44	0	22	6	"	38	6	14	6	"	20	0
1866	37	0	"	50	0	29	0	"	42	6	15	0	"	26	0
1867	26	0	"	58	0	18	0	"	25	6	12	0	"	16	0
1868	30	0	"	32	0	15	6	"	21	0	7	6	"	13	0
1869	28	0	"	38	0	15	0	"	22	6	7	6	"	14	0
1870	35	6	"	43	0	18	0	"	28	0	10	0	"	17	0
1871	36	6	"	49	0	22	0	"	38	6	14	0	"	20	0
1872	45	0	"	56	0	32	0	"	42	0	16	0	"	22	0
1873	42	0	"	51	0	25	0	"	42	0	15	6	"	22	0
1874	33	6	"	44	6	21	0	"	36	0	12	0	"	17	0
1875	38	0	"	48	6	21	0	"	34	0	13	6	"	23	6
1876	40	0	"	52	6	23	0	"	30	0	18	6	"	25	0
1877	41	0	"	51	0	25	0	"	37	0	15	0	"	24	0
1878	35	6	"	48	0	23	6	"	35	0	14	0	"	22	0
1879	34	0	"	44	0	21	0	"	34	0	14	0	"	20	0

TABLE No. 1.—CHEVIOT SHEEP—*Continued.*

Year.	Wethers.					Ewes.					Lambs.				
	s.	*d.*		*s.*	*d.*	*s.*	*d.*		*s.*	*d.*	*s.*	*d.*		*s.*	*d.*
1880	30	0	to	43	6	20	0	to	30	0	12	6	to	20	0
1881	32	0	"	45	6	29	0	"	34	0	14	0	"	20	0
1882	40	0	"	51	0	30	0	"	40	0	14	0	"	20	6
1883	44	0	"	55	6	34	6	"	46	6	15	6	"	23	0
1884	36	0	"	47	6	29	6	"	41	6	12	6	"	20	0
1885	30	0	"	38	0	24	0	"	31	0	12	0	"	18	0
1886	32	0	"	40	0	21	0	"	29	0	12	6	"	19	0
1887	29	0	"	36	0	18	0	"	26	0	11	0	"	16	6
1888	30	0	"	38	0	19	0	"	27	0	12	0	"	17	6
1889	36	0	"	44	0	24	0	"	32	0	14	0	"	22	0
1890	31	0	"	40	0	22	0	"	30	0	12	6	"	20	0
1891	27	0	"	38	0	16	0	"	25	0	9	0	"	16	0
1892	22	0	"	30	6	13	0	"	22	0	5	0	"	11	0
1893	26	0	"	35	6	18	0	"	28	6	8	6	"	15	0
1894	26	0	"	37	0	20	0	"	31	0	10	6	"	18	6
1895	28	0	"	39	0	22	0	"	34	0	11	6	"	19	6
1896	24	6	"	34	0	19	0	"	30	6	9	0	"	16	6
1897	27	0	"	36	0	21	0	"	31	6	11	0	"	17	6
1898	27	0	"	37	0	22	0	"	32	6	12	0	"	18	6
1899	24	0	"	33	0	20	0	"	30	6	10	6	"	16	0
1900	26	0	"	36	0	22	0	"	32	6	12	0	"	17	0
1901	25	0	"	32	6	20	0	"	29	6	11	0	"	16	0
1902	24	0	"	31	6	18	0	"	27	0	9	6	"	14	6
1903	26	0	"	34	0	21	0	"	31	0	11	4	"	18	0
1904	28	6	"	36	6	23	0	"	32	6	13	0	"	20	0
1905	27	6	"	35	0	23	0	"	33	0	14	0	"	21	0
1906	30	0	"	38	0	26	0	"	34	6	15	0	"	23	0
1907	28	0	"	34	0	22	0	"	30	6	13	6	"	19	6
1908	26	0	"	32	6	21	0	"	27	6	11	6	"	17	0
1909	24	0	"	31	0	18	0	"	25	6	9	6	"	16	0
1910	27	0	"	35	0	22	0	"	31	0	12	0	"	20	0
1911	24	0	"	31	6	18	6	"	27	6	10	6	"	18	0
1912	26	0	"	34	6	22	0	"	31	0	13	0	"	21	0
1913	30	0	"	39	0	24	0	"	35	6	16	0	"	24	0
1914	32	6	"	41	0	28	0	"	39	0	18	0	"	27	6
1915	36	0	"	46	0	31	0	"	44	0	20	0	"	30	6
1916	40	6	"	51	0	34	0	"	49	0	22	0	"	34	6
1917	43	6	"	56	0	38	0	"	56	0	24	0	"	34	0
1918	50	0	"	66	0	42	0	"	61	0	25	0	"	37	0
1919	53	0	"	69	0	44	6	"	67	0	28	0	"	40	6
1920	56	0	"	91	0	48	0	"	79	0	34	0	"	49	0
1921	45	0	"	60	0	52	3	"	85	9	33	9	"	52	3
1922	40	0	"	56	0	56	0	"	90	6	27	0	"	50	0
1923	44	0	"	65	0	61	0	"	106	0	30	0	"	62	0
1924	41	0	"	61	0	60	0	"	100	0	Ewe lambs— 40 0 to 85 6 Wether lambs— 31 6 to 58 0				
1925	39	3	"	50	0	56	0	"	88	9	Ewe lambs— 36 0 to 82 0 Wether lambs— 22 3 to 50 6				
1926	35	0	"	49	3	34	6	"	64	6	Ewe lambs— 28 6 to 66 6 Wether lambs— 26 3 to 42 0				
1927	28	9	"	46	3	32	6	"	55	6	Ewe lambs— 25 3 to 52 0 Wether lambs— 23 3 to 39 0				
1928	28	3	"	48	6	30	6	"	55	6	Ewe lambs— 28 0 to 45 0 Wether lambs— 22 9 to 47 0				

TABLE No. 2.—BLACKFACE SHEEP.

Year.	Wethers.					Ewes.					Lambs.				
	s.	d.		s.	d.	s.	d.		s.	d.	s.	d.		s.	d.
1819	22	0	to	24	0	12	0	to	15	0	8	0	to	9	0
1820	20	0	"	23	3	15	6	"	17	0	7	0	"	8	6
1821	18	0	"	20	0	12	0	"	13	0	6	0	"	7	0
1822	11	6	"	18	6	5	6	"	6	0	4	6	"	0	0
1823	12	0	"	16	0	5	0	"	6	6	4	0	"	5	3
1824	9	6	"	13	6	6	0	"	7	0	4	0	"	5	0
1825	22	0	"	26	0	11	0	"	13	6	6	0	"	9	0
1826	15	0	"	17	0	8	0	"	9	0	4	6	"	6	0
1827	14	0	"	18	6	7	0	"	10	0	6	0	"	7	6
1828	15	0	"	20	0	8	0	"	11	0	5	0	"	7	6
1829	14	0	"	18	0	9	0	"	10	0	6	0	"	7	0
1830	9	6	"	13	0	4	0	"	6	0	4	6	"	6	0
1831	13	0	"	17	0	5	0	"	7	6	5	0	"	6	6
1832	14	0	"	18	0	7	0	"	11	6	6	0	"	7	8
1833	16	0	"	24	0	7	6	"	12	0	6	6	"	9	0
1834	16	0	"	22	0	10	0	"	13	0	6	0	"	8	6
1835	15	0	"	18	9	10	0	"	13	0	7	0	"	8	0
1836	15	0	"	21	0	9	0	"	12	0	8	6	"	11	0
1837	13	0	"	16	0	8	0	"	12	0	8	0	"	9	6
1838	15	0	"	20	6	10	0	"	13	0	not quoted.				
1839	15	0	"	22	0	10	0	"	12	0	7	0	to	8	3
1840	15	0	"	22	6	11	0	"	12	0	7	0	"	9	3
1841	16	0	"	20	0	9	0	"	11	0	6	0	"	8	0
1842	14	0	"	19	0	7	6	"	8	0	5	6	"	7	0
1843	not quoted.					4	9	"	6	6	not quoted.				
1844	15	0	to	21	0	6	6	"	10	0	5	0	to	8	0
1845	14	0	"	23	0	8	0	"	12	0	6	0	"	8	0
1846	18	0	"	24	0	10	0	"	13	0	8	0	"	9	0
1847	20	6	"	25	0	10	0	"	14	0	8	6	"	9	6
1848	20	0	"	24	0	11	3	"	12	0	8	6	"	10	0
1849	not quoted.					not quoted.					7	0	"	7	6
1850			..					..			7	0	"	0	0
1851	17	6	to	23	0	9	0	to	12	0	6	6	"	8	0
1852	18	6	"	22	0	9	6	"	12	0	4	6	"	7	9
1853	23	0	"	27	0	14	6	"	16	6	8	0	"	11	6
1854	20	0	"	26	0	11	0	"	16	6	8	0	"	10	6
1855	23	6	"	26	6	14	0	"	16	0	10	0	"	11	0
1856	17	0	"	24	0	10	0	"	20	0	7	6	"	10	0
1857	20	0	"	29	0	10	6	"	15	0	9	3	"	11	0
1858	20	0	"	27	6	9	9	"	18	9	8	3	"	10	6
1859	20	0	"	25	0	10	0	"	14	0	8	9	"	11	0
1860	21	0	"	27	3	11	0	"	16	0	10	0	"	13	6
1861	21	0	"	29	0	12	0	"	22	0	6	3	"	14	0
1862	16	9	"	27	0	12	0	"	18	8	6	0	"	12	0
1863	20	0	"	30	6	13	0	"	16	0	8	0	"	11	6
1864	25	0	"	30	0	15	0	"	19	0	10	0	"	13	6
1865	15	6	"	32	6	15	0	"	25	0	10	0	"	17	0
1866	31	6	"	40	0	20	0	"	36	0	13	6	"	22	6
1867	20	0	"	30	6	14	0	"	22	0	7	6	"	18	6
1868	20	0	"	26	0	10	6	"	13	6	7	0	"	13	0
1869	22	0	"	28	0	11	0	"	14	0	6	9	"	9	0
1870	27	0	"	32	6	13	0	"	22	0	8	0	"	14	6
1871	23	0	"	37	0	13	0	"	23	0	11	0	"	16	3
1872	31	6	"	45	0	18	0	"	32	0	12	6	"	18	0
1873	28	0	"	39	0	16	6	"	27	0	7	0	"	16	0
1874	25	0	"	35	0	13	0	"	20	0	7	0	"	14	0
1875	26	6	"	37	6	15	0	"	21	3	9	6	"	17	6
1876	30	0	"	40	0	19	0	"	24	0	13	0	"	20	6
1877	35	0	"	38	9	18	0	"	25	0	13	6	"	23	0
1878	30	0	"	36	0	17	0	"	23	0	12	0	"	22	0
1879	25	0	"	35	9	16	0	"	24	0	10	6	"	20	0
1880	25	0	"	38	0	16	6	"	22	6	10	0	"	17	0
1881	30	0	"	39	0	15	0	"	23	0	10	0	"	15	0
1882	33	0	"	46	0	20	0	"	28	0	12	6	"	18	6
1883	36	0	"	50	6	24	6	"	33	0	14	0	"	21	6
1884	29	0	"	43	6	19	6	"	28	0	12	0	"	19	6
1885	24	0	"	34	0	13	0	"	22	6	10	0	"	15	0
1886	25	0	"	34	0	12	0	"	22	0	10	6	"	16	0
1887	22	0	"	30	0	11	0	"	19	0	8	0	"	13	0
1888	22	0	"	32	0	13	0	"	24	0	10	0	"	15	0
1889	26	0	"	40	0	18	0	"	29	0	13	0	"	22	0

TABLE NO. 2.—BLACKFACE SHEEP—*Continued.*

Year.	Wethers.					Ewes.					Lambs.				
	s.	*d.*		*s.*	*d.*	*s.*	*d.*		*s.*	*d.*	*s.*	*d.*		*s.*	*d.*
1890	24	0	to	37	0	14	0	to	27	0	10	6	to	19	0
1891	21	0	"	37	0	10	0	"	24	0	7	6	"	15	0
1892	16	0	"	28	6	6	0	"	17	0	3	0	"	10	0
1893	21	0	"	37	0	12	0	"	24	0	7	0	"	14	0
1894	20	0	"	37	0	14	6	"	26	6	8	6	"	16	6
1895	23	0	"	41	0	16	0	"	28	6	9	0	"	17	0
1896	19	0	"	35	4	13	0	"	24	0	6	0	"	13	6
1897	21	0	"	36	6	15	0	"	25	6	7	0	"	14	6
1898	22	0	"	37	0	16	0	"	26	6	8	0	"	15	0
1899	20	0	"	33	6	13	0	"	24	0	5	6	"	13	0
1900	23	0	"	36	0	16	0	"	26	6	8	0	"	15	6
1901	20	0	"	35	0	14	0	"	25	6	6	6	"	14	6
1902	18	6	"	34	0	12	0	"	24	0	6	0	"	14	0
1903	21	0	"	36	0	15	0	"	28	0	7	0	"	16	6
1904	23	0	"	38	6	18	0	"	30	0	8	6	"	17	6
1905	21	6	"	37	0	19	0	"	31	0	9	0	"	18	6
1906	23	0	"	38	0	20	0	"	33	0	10	0	"	19	6
1907	21	0	"	33	6	17	0	"	28	0	8	6	"	17	6
1908	19	6	"	30	0	15	0	"	24	6	8	0	"	16	0
1909	17	0	"	28	0	11	6	"	22	0	6	3	"	13	0
1910	21	0	"	32	6	16	0	"	27	6	8	0	"	17	0
1911	19	0	"	29	6	14	0	"	24	0	7	0	"	15	0
1912	21	6	"	32	6	17	0	"	27	6	9	6	"	17	6
1913	24	6	"	36	0	21	0	"	31	0	12	6	"	21	6
1914	27	0	"	38	6	25	0	"	34	6	15	6	"	24	0
1915	31	0	"	42	6	29	0	"	39	6	17	0	"	25	6
1916	33	0	"	46	6	31	0	"	42	0	19	0	"	27	6
1917	36	0	"	51	0	33	0	"	47	0	21	0	"	30	0
1918	41	0	"	56	0	36	0	"	50	0	27	0	"	33	0
1919	44	0	"	62	0	39	0	"	54	0	29	0	"	36	0
1920	46	0	"	86	0	44	0	"	62	0	31	0	"	43	0
1921	32	9	"	60	9	35	3	"	62	6	20	3	"	47	0
1922	40	3	"	63	0	40	6	"	74	0	18	0	"	44	0
1923	46	0	"	65	6	43	0	"	78	0	21	0	"	45	6
1924	46	0	"	68	6	45	6	"	85	0	25	0	"	55	6
1925	36	0	"	60	0	40	0	"	78	0	17	6	"	44	0
1926	80	0	"	54	0	31	0	"	70	0	Wether lambs—				
											21	9	"	49	0
											Ewe lambs—				
											19	0	"	50	0
1927	26	6	"	48	0	26	0	"	64	0	Wether lambs—				
											17	9	"	40	0
											Ewe lambs—				
											17	6	"	37	9
1928	29	0	"	45	9	24	0	"	57	0	Wether lambs—				
											16	6	"	38	6
											Ewe lambs—				
											17	0	"	38	9

TABLE NO. 3.—PRICE OF WOOL, PER STONE OF 24 LB., SINCE 1818.

Year.	Laid Cheviot.	White Cheviot.	Laid Highland.	White Highland.
	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d
1818	40 0 to 42 2	..	20 0 to 22 6	..
1819	21 0 〃 22 0	..	10 0 〃 10 3	..
1820	20 0 〃 22 0	..	9 0 〃 10 0	..
1821	18 0 〃 20 0	..	9 0 〃 10 0	..
1822	12 6 〃 14 6	..	5 0 〃 6 6	..
1823	9 0 〃 10 6	..	5 0 〃 5 9	..
1824	13 6 〃 15 0	..	6 0 〃 6 3	..
1825	10 6 〃 22 0	..	10 0 〃 10 6	..
1826	11 0 〃 14 0	..	5 0 〃 5 6	..
1827	11 0 〃 14 0	..	5 6 〃 6 9	..
1828	8 0 〃 11 0	..	5 6 〃 6 0	..
1829	8 6 〃 11 0	..	4 3 〃 0 0	..
1830	9 6 〃 11 0	..	4 6 〃 5 0	..
1831	17 0 〃 20 0	..	7 6 〃 8 6	..
1832	14 0 〃 16 0	..	7 0 〃 7 6	..
1833	18 0 〃 20 7	..	10 0 〃 11 0	..
1834	21 0 〃 24 6	..	5 6 〃 7 0	..
1835	19 0 〃 20 6	..	9 6 〃 10 8	..
1836	21 0 〃 25 0	..	10 0 〃 14 0	..
1837	12 0 〃 14 0	..	7 0 〃 7 8	..
1838	19 0 〃 22 6	..	6 0 〃 10 0	..
1839	18 0 〃 20 0	..	8 0 〃 12 0	..
1840	15 0 〃 0 0	..	7 0 〃 0 0	..
1841	15 0 〃 16 9	..	6 0 〃 7 5	..
1842	12 6 〃 14 0	..	not quoted.	..
1843	9 0 〃 11 6	..	5 0 to 6 0	..
1844	15 0 〃 18 0	..	not quoted.	.
1845	14 6 〃 17 6	..	7 6 to 8 6	..
1846	12 0 〃 14 6	..	8 0 〃 8 6	..
1847	12 6 〃 14 0	..	not quoted.	..
1848	9 6 〃 11 0	..	4 9 to 0 0	..
1849	12 0 〃 16 6	..	6 0 〃 6 3	..
1850	15 0 〃 17 6	..	8 0 〃 8 6	..
1851	12 0 〃 16 0	..	8 0 〃 9 3	..
1852	13 6 〃 15 0	..	8 0 〃 9 0	..
1853	19 0 〃 22 6	..	11 0 〃 12 6	..
1854	12 0 〃 15 0	..	7 6 〃 8 6	..
1855	14 6 〃 19 0	..	8 6 〃 9 0	..
1856	19 0 〃 21 6	..	11 0 〃 0 0	..
1857	19 0 〃 24 0	..	13 0 〃 14 8	..
1858	15 0 〃 17 0	..	8 9 〃 10 0	..
1859	18 6 〃 24 0	..	10 9 〃 11 6	..
1860	22 0 〃 32 0	37 0 to 38 0	10 0 〃 11 3	..
1861	19 6 〃 27 0	from 30s. upwards.	not quoted.	..
1862	18 6 〃 26 0	30 0 to 37 0	11 6 to 16 0	..
1863	25 6 〃 31 0	38 0 〃 42 0	15 3 〃 17 6	..
1864	31 0 〃 39 0	47 0 〃 54 0	17 6 〃 20 0	..
1865	23 0 〃 30 0	44 0 〃 45 0	15 0 〃 17 0	..
1866	24 0 〃 30 0	30 0 〃 38 0	14 0 〃 16 0	..
1867	16 0 〃 21 6	not quoted.	not quoted.	..
1868	19 0 〃 26 0	28 0 to 32 0	8 6 to 9 0	..
1869	18 0 〃 26 6	not quoted.	8 6 〃 10 0	..
1870	15 0 〃 23 6	25 0 to 26 0	9 6 〃 0 0	..
1871	20 0 〃 26 6	30 0 〃 34 6	12 0 〃 15 0	..
1872	26 0 〃 37 6	40 0 〃 48 0	18 0 〃 21 0	..
1873	17 0 〃 18 0	34 0 〃 40 0	9 0 〃 12 0	..
1874	18 6 〃 26 6	30 0 〃 34 0	9 6 〃 13 0	..
1875	25 0 〃 32 0	34 6 〃 36 0	12 6 〃 16 0	..
1876	20 0 〃 24 0	30 0 〃 34 6	9 6 〃 12 0	..
1877	20 9 〃 26 0	28 0 〃 30 0	10 0 〃 12 0	..
1878	18 9 〃 25 0	27 0 〃 32 0	8 6 〃 11 6	..
1879	15 0 〃 17 0	prices very low.	7 0 〃 0 0	..
1880	20 0 〃 24 0	30 0 to 32 0	10 6 〃 11 6	14 0 to 15 0
1881	17 0 〃 21 0	27 0 〃 30 0	5 0 〃 9 6	12 0 〃 13 0
1882	14 0 〃 18 0	27 6 〃 28 0	7 6 〃 9 0	13 0 〃 14 0
1883	13 0 〃 18 0	26 0 〃 28 0	6 6 〃 8 6	11 6 〃 12 6
1884	13 0 〃 18 0	26 0 〃 28 0	6 6 〃 8 6	11 6 〃 12 6
1885	12 0 〃 17 0	22 6 〃 26 0	6 0 〃 8 0	11 6 〃 12 0
1886	13 0 〃 18 0	23 0 〃 27 6	6 6 〃 8 6	11 6 〃 12 0
1887	14 0 〃 22 0	23 0 〃 28 0	7 0 〃 9 0	11 6 〃 13 0
1888	13 0 〃 20 0	23 0 〃 28 0	7 0 〃 9 0	11 0 〃 12 6

TABLE NO. 3.—PRICE OF WOOL—*Continued.*

Year.	Laid Cheviot.	White Cheviot.	Laid Highland.	White Highland.
	s. *d.* *s.* *d.*	*s.* *d.* *s.* *d.*	*s.* *d.* *s.* *d.*	*s.* *d.* *s.* *d.*
1889	13 0 to 18 0	24 0 to 28 0	7 0 to 9 0	11 0 to 12 6
1890	13 0 " 18 0	24 0 " 28 0	7 0 " 9 0	11 0 " 12 6
1891	12 6 " 18 0	22 0 " 28 0	7 0 " 9 0	11 0 " 12 6
1892	12 0 " 18 0	20 0 " 28 0	7 0 " 8 6	10 6 " 12 0
1893	12 0 " 17 0	20 0 " 27 0	7 0 " 8 0	10 0 " 12 0
1894	12 0 " 16 0	20 0 " 26 0	7 0 " 8 0	10 0 " 12 0
1895	12 0 " 16 0	20 0 " 25 0	7 0 " 8 0	10 0 " 11 6
1896	11 0 " 15 0	19 0 " 24 0	7 0 " 8 0	10 0 " 11 6
1897	11 0 " 14 0	18 0 " 23 0	7 0 " 8 0	10 6 " 12 0
1898	10 0 " 13 0	16 0 " 20 0	7 0 " 8 0	10 0 " 11 6
1899	10 0 " 13 0	13 0 " 18 6	7 0 " 8 0	8 6 " 9 6
1900	9 9 " 12 0	13 0 " 18 6	6 9 " 7 9	8 0 " 9 6
1901	9 0 " 10 0	11 0 " 16 6	5 9 " 6 6	8 0 " 9 0
1902	9 0 " 10 0	11 6 " 17 0	6 0 " 6 6	8 6 " 9 6
1903	10 0 " 12 0	15 0 " 18 0	7 0 " 8 0	11 6 " 12 6
1904	15 0 " 17 0	20 0 " 21 0	9 0 " 10 0	14 0 " 15 0
1905	17 0 " 20 0	24 0 " 26 0	10 0 " 11 0	15 0 " 16 0
1906	18 0 " 21 0	27 0 " 28 6	11 6 " 13 0	16 6 " 17 6
1907	*	22 0 " 24 0	11 0 " 12 6	16 0 " 17 0
1908	*	16 0 " 18 0	†	8 0 " 8 6
1909	*	24 0 " 26 0	†	12 6 " 14 0
1910	*	25 0 " 30 0	†	13 0 " 14 6
1911	*	25 0 " 30 0	†	13 0 " 14 6
1912	*	24 0 " 29 0	†	14 0 " 15 0
1913	*	25 0 " 30 0	†	17 0 " 18 0
1914	*	24 0 " 29 0	†	15 0 " 15 6
1915‡	*	42 0 " 46 0	†	21 0 " 22 0

* No Cheviots smeared now. † No Highlands smeared now. ‡ These are July prices.

[*See over*

PRICE OF WOOL PER STONE OF 24 LB.—*Continued.*

	CHEVIOT.				HALF-BRED.				BLACK-FACE.		CROSS-BRED (BLACKFACE EWE AND LEICESTER RAM).			
	HOGG.		EWE AND WETHER.		HOGG.		EWE AND WETHER.		HOGG.	EWE AND WETHER.	HOGG.		EWE AND WETHER.	
	Washed.	Un-washed.	Washed.	Un-washed.	Washed.	Un-washed.	Washed.	Un-washed.			Washed.	Un-washed.	Washed.	Un-washed.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
[1] 1916 . . .	36 6	30 0	33 0	27 6	34 6	28 6	33 0	27 6	23 0	23 0	28 6	25 6	28 6	25 6
CAITHNESS & SUTHERLAND	40 0	32 6	34 0	29 0	35 0	29 0	34 0	28 6						
[1] 1917 . . .	40 6	33 0	37 0	31 0	38 6	31 6	37 0	31 0	25 6	25 6	31 6	28 6	31 6	28 6
CAITHNESS & SUTHERLAND	44 6	36 0	37 6	32 6	39 0	32 6	37 6	31 6						
[1] 1918 . . .	43 6	35 6	39 6	33 0	41 0	33 6	39 6	33 0	27 0	27 0	33 6	30 6	33 6	30 6
CAITHNESS & SUTHERLAND	47 6	38 6	40 0	34 6	41 6	34 6	40 0	33 6						
1919 . . .	84 0	70 0	82 0	66 0	82 0	62 0	70 0	58 0	34 0	34 0	46 0	39 0	44 0	38 0
CAITHNESS & SUTHERLAND	88 0	74 0	84 0	68 0	84 0	63 0	72 0	60 0						
1920 . . .	86 0	70 0	83 0	66 0	74 0	54 0	65 0	50 0	24 0	24 0	35 0	29 0	34 0	27 0
CAITHNESS & SUTHERLAND	90 0	74 0	87 0	68 0	76 0	56 0	68 0	52 0						
1921 . . .	22 0	17 0	19 0	15 0	18 6	14 6	16 0	13 0	9 6	9 6	12 0	10 0	12 0	10 0
CAITHNESS & SUTHERLAND	23 0	18 0	20 0	16 0	19 6	15 6	17 0	14 0						
1922 . . .	30 0	25 0	26 0	22 0	26 0	20 0	22 0	18 0	16 0	16 0	16 6	15 0	16 6	15 0
CAITHNESS & SUTHERLAND	31 6	26 0	27 0	23 0	27 0	21 0	23 0	19 0						
1923 . . .	41 0	34 0	36 0	30 0	33 0	27 0	30 0	25 0	17 6	17 6	20 0	18 0	20 0	18 0
CAITHNESS & SUTHERLAND	43 0	35 0	37 0	31 0	34 0	28 0	31 0	26 0						
1924 . . .	58 0	49 0	53 0	45 0	49 0	40 0	45 0	39 0	25 6	25 6	34 6	30 6	33 0	30 0
CAITHNESS & SUTHERLAND	60 0	50 0	54 0	46 0	50 0	41 0	46 0	49 0						
1925 . . .	39 0	34 0	36 0	30 0	33 6	28 6	32 0	27 0	25 6	25 6	26 0	23 6	25 6	23 0
CAITHNESS & SUTHERLAND	40 0	35 0	37 0	31 0	34 0	29 0	33 0	28 0						
1926 . . .	35 0	29 0	32 0	28 0	32 0	26 6	28 0	24 6	19 0	19 0	22 6	20 0	22 0	19 6
CAITHNESS & SUTHERLAND	36 0	30 0	33 0	29 0	33 0	27 6	29 0	25 6						
1927 . . .	38 0	31 0	35 0	31 0	34 6	29 6	32 0	27 6	24 0	24 0	27 0	25 6	27 0	25 0
CAITHNESS & SUTHERLAND	39 0	32 0	36 0	32 0	35 0	30 0	33 0	28 6						
1928 . . .	51 0	43 0	48 0	41 0	47 0	40 0	43 0	37 0	24 6	24 6	33 0	31 0	32 0	30 0
CAITHNESS & SUTHERLAND	52 0	44 0	49 0	42 0	48 0	41 0	44 0	38 0						

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[1] The prices given were prices fixed by Government, and not free market prices.

GENERAL SHOW AT ABERDEEN, 1928.

THE Ninety-seventh Show was held at Aberdeen on Tuesday, 24th July, and three following days. The Show was favoured with good weather during the first three days, but on Friday there was a heavy rainfall, especially during the earlier part of the day.

As on former occasions, the site provided by the city of Aberdeen was on the Links. This site has the advantage of great accessibility, being only a short distance from the centre of the city. In other respects, however, the Links cannot be regarded as entirely suitable. The irregularities of the ground rendered the laying out of the buildings extremely difficult, and the loose condition of the surface, with complete absence of turf on large areas, led to serious complaints from stand-holders and visitors of inconvenience and damage by dust. It is only right to mention, however, that the city authorities did their utmost to mitigate this evil by carrying out extensive watering of the Showyard as occasion permitted.

The attendance of the public was remarkably large, the numbers who paid for admission reaching a total of 75,501. This figure has not been exceeded since the very large Show held in Edinburgh in 1919. The attendance would have been larger if the fine weather had continued throughout Friday. On Thursday alone 47,010 paid for admission.

There was a good entry of live-stock in all sections, the classes for Shorthorn and Aberdeen-Angus cattle being particularly well filled. Implements and other exhibits provided a comprehensive and interesting display.

It is gratifying to report that the accounts show a credit balance of about £1882.

STATISTICS.

The following tables give the number of entries in the various sections:—

1. CATTLE.

Class.	SHORTHORN.	No. of Entries.	
1.	Aged bulls	11	
2.	Two-year-old bulls	2	
3.	Two-year-old bulls	4	
4.	One-year-old bulls	21	
5.	One-year-old bulls	19	
6.	Cows of any age in milk	11	
7.	Cows of any age	4	
8.	Two-year-old cows or heifers	8	
9.	One-year-old heifers	14	
10.	One-year-old heifers	7	
		—	101
	ABERDEEN-ANGUS.		
11.	Aged bulls	18	
12.	Two-year-old bulls	8	
13.	One-year-old bulls	13	
14.	Cows of any age	8	
	Extra Stock	1	
15.	Three-year-old cows	10	
16.	Two-year-old cows or heifers	8	
17.	One-year-old heifers	16	
18.	One-year-old heifers	9	
		—	91
	GALLOWAY.		
19.	Aged bulls	2	
20.	Two-year-old bulls	4	
21.	One-year-old bulls	3	
22.	Cows of any age	3	
23.	Two-year-old cows or heifers	7	
24.	One-year-old heifers	15	
		—	34
	BELTED GALLOWAY.		
25.	Bulls born before 1st December 1926	4	
26.	Bulls born on or after 1st December 1926	8	
27.	Cows or heifers, born before 1st December 1925, in milk or in calf; if in calf, to calve on or before 1st December of the year of the Show	6	
28.	Heifers born on or after 1st December 1925	6	
29.	Heifers born on or after 1st December 1926	10	
		—	34
	HIGHLAND.		
30.	Aged bulls	2	
	Extra Stock	1	
31.	Two-year-old bulls	1	
32.	One-year-old bulls	6	
33.	Cows of any age	3	
34.	Three-year-old cows or heifers	2	
35.	Two-year-old heifers	3	
36.	One-year-old heifers	5	
		—	23

AYRSHIRE.

37.	Cows in milk, born before 1925	2	
38.	Cows in milk, born after 1st January 1925	5	
39.	Cows of any age, in calf, and due to calve before 1st December of the year of the Show	4	
40.	Heifers, born in or after 1924, in calf, and due to calve before 1st December of the year of the Show	4	
41.	Two-year-old heifers	4	
42.	One-year-old heifers	6	
43.	Aged bulls	3	
	Extra Stock	1	
44.	Two-year-old bulls	6	
45.	One-year-old bulls	6	
		—	41

BRITISH FRIESIAN.

46.	Cows in milk, born in or before 1924	6	
47.	Cows in calf and not in milk, born in or before 1924	6	
48.	Cows in milk, born in 1925 or 1926	2	
49.	Heifers born in 1926	10	
50.	Heifers born before 1st July 1927	8	
51.	Heifers born on or after 1st July 1927	6	
52.	Bulls born in or before 1925	7	
53.	Bulls born in 1926	2	
54.	Bulls born in 1927	4	
		—	51

RED POLL.

55.	Cows in milk, born before 1926	9	
56.	Heifers born in 1926	5	
57.	Heifers born in 1927	5	
58.	Bulls born in or before 1926	3	
	Extra Stock	1	
59.	Bulls born in 1927	4	
		—	27

FAT CATTLE.

60.	Ox, born between 1st December 1925 and 1st December 1926	6	
61.	Ox, born on or after 1st December 1926	8	
62.	Heifer, any pure breed or cross and any age	5	
		—	19
			421

2. HORSES.

CLYDESDALE STALLIONS.

63.	Aged stallions	1	
64.	Three-year-old entire colts	10	
65.	Two-year-old entire colts	26	
66.	One-year-old entire colts	17	
		—	66

CLYDESDALE GELDINGS.

67.	Aged geldings	10	
68.	Three-year-old geldings	11	
69.	Two-year-old geldings	9	
		—	30

Clydesdale Mares and Fillies.

70. Mares of any age with foal at foot	6	
71. Yeld mares born before 1925	9	
72. Three-year-old yeld mares or fillies	6	
73. Two-year-old fillies	12	
74. One-year-old fillies	10	
	—	43

Shire.

75. Stallion, born before 1927	8	
76. Gelding, born before 1926	8	
77. Yeld mare or filly, born before 1927	8	
78. Filly, colt, or gelding, born in 1927	10	
	—	34

Hunters.

79. Hunter brood mares, with foal at foot	3	
80. Yeld mares, fillies, or geldings, born in 1925, in hand	3	
81. Yeld mares, fillies, or geldings, born in 1926, in hand	6	
82. Fillies, colts, or geldings, born in 1927, in hand	3	
	—	15

Highland Ponies.

83. Stallions, born before 1926, not exceeding 14·2 hands	1	
84. Mares, born before 1926, not exceeding 14·2 hands, yeld or with foal at foot	7	
85. Entire colts, born on or after 1st January 1926	2	
86. Fillies, born on or after 1st January 1926	4	
	—	14

Western Island Ponies.

87. Stallions, born before 1926, not exceeding 14 hands	...	
Extra Stock	2	
88. Mares, born before 1926, not exceeding 14 hands, yeld or with foal at foot	7	
Extra Stock	2	
89. Entire colts, born on or after 1st January 1926	...	
90. Fillies, born on or after 1st January 1926	6	
	—	17

Shetland Ponies.

91. Stallions, not exceeding 10½ hands, born before 1925	8	
92. Entire colts, not exceeding 10½ hands, born in 1925 or 1926	5	
93. Mares, not exceeding 10½ hands, with foal at foot	9	
94. Yeld mares, not exceeding 10½ hands	10	
95. Fillies, not exceeding 10½ hands, born in 1925 or 1926	4	
96. Gelding, not exceeding 10½ hands, born before 1926	5	
	—	41

Riding Ponies.

97. Mares or geldings, any age, over 12 hands and not exceeding 14 hands, in saddle, to be ridden by boy or girl 10 years and under 14 years of age on first day of Show	Cancelled. Insufficient Entries.
98. Mares or geldings, any age, not exceeding 12 hands, in saddle, to be ridden by boy or girl under 10 years of age on first day of Show	

Horses in Harness.

99.	Yeld mares, fillies, or geldings, any age, in harness, exceeding 15 hands, to be driven in the ring	4	
100.	Yeld mares, fillies, or geldings, any age, in harness, over 14 hands, and not exceeding 15 hands, to be driven in the ring	4	
101.	Yeld mares, fillies, or geldings, any age, not exceeding 14 hands, to be driven in the ring	3	
	Extra Stock	1	
		—	12

Draught Geldings in Harness.

102.	Draught geldings, any age, in harness, shown in cart or lorry (1)		
			277

Jumping.

1.	Horses or ponies, any height	15	
2.	Horses or ponies, any height (not having won a prize of more than £10)	11	
3.	Horses or ponies, any height—handicap	15	
4.	Horses or ponies, any height	15	
5.	Horses or ponies, any height—handicap	15	
		—	71

3. SHEEP.

Blackface.

103.	Tups above one shear	20	
104.	Shearling tups	31	
105.	Shearling tups—out-wintered	21	
106.	Tup lambs	10	
107.	Ewes above one shear, with lamb at foot	5	
108.	Shearling ewes or gimmers	16	
		—	103

Cheviot.

109.	Tups above one shear	12	
110.	Shearling tups	21	
111.	Tup lambs	15	
112.	Ewes above one shear, with lamb at foot	10	
113.	Shearling ewes or gimmers	16	
		—	74

Border Leicester.

114.	Tups above one shear	8	
115.	Shearling tups	16	
116.	Tup lambs	25	
117.	Ewes above one shear	9	
118.	Shearling ewes or gimmers	15	
119.	Ewe lambs	17	
		—	90

HALF-BRED.

120.	Tups above one shear	Cancelled. Insufficient Entries.
121.	Shearling tups	
122.	Ewes above one shear	
123.	Shearling ewes or gimmers	
124.	Three ewe lambs	

OXFORD DOWN.

125.	Shearling tups	9	
126.	Shearling ewes or gimmers	6	
127.	Tup lambs	10	
128.	Three ewe lambs	3	
			28

SUFFOLK.

129.	Tups one shear and over	5	
130.	Shearling ewes or gimmers	6	
131.	Tup lambs	11	
132.	Three ewe lambs	5	
			27

SHROPSHIRE.

133.	Shearling tups	6	
134.	Shearling ewes or gimmers	5	
			11

DORSET HORN.

135.	Tups, any age	4	
	Extra Stock	1	
136.	Ewes or gimmers	5	
			10

FAT SHEEP.

137.	Three fat lambs, any breed or cross, dropped in the year of the Show	6	
138.	Three fat lambs, out of blackface ewes, dropped in the year of the Show	...	
			6
			349

4. GOATS.

139.	Male goats, any variety, over two years	2	
140.	Male goats, any variety, over one but not exceeding two years	...	
141.	Male kids, any variety, not exceeding one year	4	
142.	Female goats, Anglo-Nubian, in milk	...	
143.	Female goats, any other variety, in milk	7	
	Extra Stock	1	
144.	Goatlings, any variety, over one but not exceeding two years	6	
145.	Female kids, any variety, not exceeding one year	5	
			25
146.	Milking competition, open to Classes 142 and 143 (8)	...	
			...
			25

5. PIGS.

LARGE WHITE.

147. Boars born before 1927	8	
148. Boars born in 1927	4	
149. Boars born in 1928	8	
150. Sows born before 1927	7	
151. Sows born in 1927	7	
152. Sows born in 1928	9	
		43

MIDDLE WHITE.

153. Boars born before 1928	4	
154. Boars born in 1928	1	
155. Sows born before 1927	6	
156. Sows born in 1927	6	
157. Sows born in 1928	2	
		19

LARGE BLACK.

158. Boars born before 1927	1	
159. Boars born in 1927	1	
160. Boars born in 1928	2	
161. Sows born before 1927	4	
162. Sows born in 1927	5	
163. Sows born in 1928	5	
		18
		80

LARGE WHITE ULSTER.

164. Boars born before 1928
165. Boars born in 1928
166. Sows born before 1928
167. Sows born in 1928

No Entries.

6. POULTRY.

1-119. Poultry	578

7. FUR-PRODUCING RABBITS.

1-10. Rabbits	120

8. HONEY, &c.

OPEN CLASSES.

1. Collection of appliances suitable for a beginner's outfit for bee-keeping	4
2. Best and most complete frame hive for general use, with any improvements. Unpainted	5
3. Best and most complete hive. Unpainted. Price not to exceed 35s.	5
4. Six sections of comb honey	15
5. Six sections of heather honey	2
6. Six jars of run or extracted light-coloured honey, approximate weight 6 lb.	9
7. Six jars of run or extracted medium or dark-coloured honey, excluding heather, approximate weight 6 lb.	6

8.	Six jars of pressed heather honey in liquid form, approximate weight 6 lb.	8	
9.	Six jars of granulated honey, approximate weight 6 lb.	12	
10.	Two shallow frames of comb honey for extracting purposes	9	
11.	Products made with the aid of honey	7	
12.	Best display of honey in any form staged in space 3 feet by 3 feet, height from table not exceeding 4 feet, weight of honey not to exceed 40 lb.	1	
13.	Best exhibit of not less than 1 lb. of wax in any form	11	
14.	Best exhibit of not less than 1 lb. of wax made into shapes for retail trade and over-counter trade	7	
15.	Observatory hive with queen and bees—two or more frames	3	
16.	Observatory hive with queen and bees—one frame	5	
		—	109

CONFINED TO SCOTTISH EXHIBITORS.

17.	One standard frame of comb honey for extracting purposes	7	
18.	Six sections of comb honey	18	
19.	Six sections of heather honey	4	
20.	Six jars of run or extracted medium or dark-coloured honey, excluding heather, approximate weight 6 lb.	11	
21.	Six jars of run or extracted light-coloured honey, approximate weight 6 lb.	18	
		—	58
			167

9. DAIRY PRODUCE.

1.	Powdered butter, not less than 3 lb.	9	
2.	Fresh butter, three 1-lb. rolls	14	
3.	Cheddar cheese, 56 lb. and upwards	17	
4.	Cheese, 14 lb. and under	14	
		—	54

10. WOOL.

PURE BREED CLASSES.

1.	Blackface ewe	7	
2.	Blackface hogg	6	
3.	Cheviot ewe	3	
4.	Cheviot hogg	2	
5.	Border Leicester ewe	2	
6.	Border Leicester hogg	2	
7.	Half-bred ewe	3	
8.	Half-bred hogg	4	
9.	Oxford Down ewe	3	
10.	Oxford Down hogg	2	
11.	Suffolk ewe	2	
12.	Suffolk hogg	2	
13.	Dorset horn ewe	3	
14.	Dorset horn hogg	2	
15.	Shetland ewe	4	
16.	Shetland hogg		
		—	53

11. RURAL INDUSTRIES.

1-27	352

12. HORSE-SHOEING.

1 and 2	75

13. STOCK JUDGING COMPETITION.

Open to competitors not exceeding 25 years of age.	106

ABSTRACT.

1. Cattle	421
2. Horses	277
Horses—Jumping	71
3. Sheep	349
4. Goats	25
5. Pigs	80
6. Poultry	578
7. Fur-Producing Rabbits	120
8. Honey, &c.	167
9. Dairy Produce	54
10. Wool	53
11. Rural Industries	352
12. Horse-Shoeing	75
13. Stock Judging Competition	106
	2728

The following table gives a comparative view of the entries of cattle, horses, sheep, goats, pigs, poultry, rabbits, honey, dairy produce, wool, rural industries, &c., and implements, of the value of the premiums offered, and of the receipts at the entrance-gates, grand stands, and for catalogues at the Shows which have been held in the Aberdeen Show Division :—

Year.	Cattle.	Horses.	Sheep.	Goats.	Pigs.	Poultry.	Rabbits.	Honey, &c.	Dairy Produce.	Wool.	Rural Industries.	Horse-Shoeing	Stock Judging Competition.	Implements.	Premiums.	Drawings at Show.
1834	188	77	77	..	44	..	..	..	28	..	..	..	..	9	£627	£337
1840	269	80	51	..	40	..	..	..	46	..	..	..	..	30	781	586
1847	361	105	92	..	24	42	..	..	42	..	..	..	..	49	920	510
1858	450	189	281	..	47	122	..	..	..	..	..	..	..	802	1500	1,229
1868	373	139	260	..	39	160	..	..	..	..	..	..	..	1158	1600	1,577
1876	424	227	231	..	58	374	..	..	..	..	..	..	..	1812	2440	2,899
1885	385	223	231	..	7	252	..	..	40	..	..	..	..	1849	2368	3,436
1894	314	324	184	..	34	365	..	..	58	..	..	34	..	2532	2440	5,121
1902	330	253	243	..	42	475	..	..	48	16	..	..	..	1988	2796	4,413
1908	331	299	237	..	42	509	..	..	54	..	..	..	..	1931	3045	4,596
1920	340	250	279	19	112	597	..	69	43	36	..	..	..	2065	4608	14,120
1928	421	277	349	25	80	578	120	167	54	53	352	75	106	2377	6131	11,031

A COMPARISON.

The following figures relating to some of the most successful Shows the Society has held will be perused with interest:—

	Cattle.	Horses.	Sheep.	Goats.	Pigs.	Poultry.	Rabbits.	Total Live Stock.	Implements.	Premiums.	Drawings at Show.	Profit.
Glasgow, 1867 .	286	212	257	..	58	150	..	963	1344	£1600	£3,005	£1307
Edinburgh, 1869	310	212	340	..	22	239	..	1123	1900	1600	4,078	2067
Glasgow, 1875 .	411	405	296	..	48	479	..	1639	2220	2665	6,231	3816
Edinburgh, 1877	339	342	305	..	30	234	..	1250	2292	2714	6,734	3710
Edinburgh, 1884	580	453	493	..	35	253	..	1814	2282	4343	6,548	1855
Edinburgh, 1893	380	349	294	..	31	360	..	1414	2268	2600	4,918	2323
Aberdeen, 1894 .	314	324	184	..	34	365	..	1221	2532	2440	5,121	1678
Perth, 1896 .	292	258	204	..	20	374	..	1148	1945	2205	4,788	2511
Glasgow, 1897 .	317	350	245	..	30	275	..	1217	2227	2897	4,392	2021
Edinburgh, 1809	386	518	477	..	46	551	..	1978	2585	3844	10,285	3911
Stirling, 1900 .	321	288	369	..	28	457	..	1463	2095	2915	4,305	1078
Inverness, 1901 .	360	257	204	..	22	499	..	1340	1460	2806	2,485	99
Aberdeen, 1902 .	330	253	243	..	42	475	..	1343	1988	2796	4,413	1604
Perth, 1904 .	348	315	283	..	35	413	..	1394	1972	3058	4,993	1828
Glasgow, 1905 .	310	462	284	..	60	534	..	1750	1875	3702	4,473	1203
Peebles, 1906 .	253	258	291	..	40	438	..	1280	1658	3072	2,596	416
Edinburgh, 1907	363	464	352	..	58	605	..	1842	2140	3614	7,061	2309
Aberdeen, 1908 .	331	299	237	..	42	509	..	1418	1931	3045	4,596	1881
Stirling, 1909 .	330	355	249	..	54	539	..	1527	1977	3017	4,638	1100
Dumfries, 1910	270	355	295	..	54	481	..	1455	1950	3057	3,411	562
Paisley, 1913 .	408	472	334	..	48	536	..	1798	1968	5109	6,468	2527
Edinburgh, 1919	215	301	221	60	43	398	..	1238	1605	4517	17,377	3275
Aberdeen, 1920 .	340	250	279	19	112	597	..	1597	2065	4608	14,120	1679
Stirling, 1921 .	367	279	299	59	188	582	..	1774	2201	5055	12,822	2350
Dumfries, 1922 .	422	272	339	41	229	588	..	1891	2156	5488	11,428	1090
Perth, 1924 .	406	283	366	21	202	760	..	2038	2382	5712	10,758	2311
Glasgow, 1925 .	461	340	349	31	178	577	178	2114	2570	6136	12,865	4226
Kelso, 1926 .	430	284	597	31	159	546	108	2155	2360	6004	9,218	324
Edinburgh, 1927	462	357	493	63	201	724	184	2484	2874	6049	12,315	2090
Aberdeen, 1928 .	421	277	349	25	80	578	120	1850	2377	6131	11,031	1882

CATTLE.

Although the total entry of Cattle, 421, was somewhat less than last year, the entry of Shorthorns, 101, was larger than at any recent Show of the Society. Unfortunately, however, there was rather a large proportion of absentees. In spite of this the classes were well filled, and the quality of the exhibits reached a high standard. The President's Champion Medal for the best Shorthorn, the Paisley Perpetual Gold Challenge Cup, the Duthie Perpetual Challenge Cup, and the Shorthorn Society's Special Prize of £20 for the best bull were won by Mr Robert L. P. Duncan, Pitpointie, Auchterhouse, Dundee, with "Balcairn Royal Standard," 204,694 (Fig. 39). This stylish two-year-old dark roan bull was bred by Mr Falconer L. Wallace of Candacraig and Balcairn, and got by "Calrossie Ramsden Monarch," 188,134, out of "Balcairn Royalty," 8759. The Reserve Champion was "Bridgebank Vulcan," a thick low-set yearling bull, the property of and bred by Mr Albert J. Marshall, Bridgebank, Stranraer. Mr Falconer L. Wallace won the Shorthorn Society's Special Prize of £20 for the best female with "Balcairn Lupin," 80,847, a fine quality red roan two-year-old heifer, bred by Exhibitor. This animal was also one of three which secured for Mr Wallace the Silver Cup offered for the best group of Shorthorns consisting of a bull, a cow, and a heifer.

There were 91 entries in the Aberdeen-Angus Section, and both male and female classes were well filled with stock of an admirable quality. Mr James Beddie, Banks, Strichen, carried off the President's Champion Medal with "Gammer Iona," 73,458 (Fig. 40), a grand short-legged five-year-old cow, bred by Exhibitor, and got by "Delegate of Banks," 49,955, out of "Joyful Gammer," 66,398. This animal, which was entered as "Extra Stock," having been first in her class at the Edinburgh Show of 1927, also secured the Fife and Kinross Perpetual Gold Challenge Cup and the Silver Cup presented by Mr Falconer L. Wallace for the best female of the breed, which was offered for competition for the first time. The Ballindalloch Challenge Cup for the best bull was won by Mr J. J. Cridlan, Maisemore Park, Gloucester, with "Evader of Harviestoun," 52,626, and the corresponding cup for best cow, for which "Gammer Iona" was not eligible, was won by Colonel Norman Kennedy, D.S.O., of Doonholm, Ayr, with "Bettina of Doonholm," 78,885.

Galloways were not strong in numbers, there being an entry of 34. The Champion was found in "Joan 6th of Scroggiehall," 28,801 (Fig. 41), a fine quality short-legged six-year-old cow, the property of Mr R. Jardine Paterson, Balgray, Lockerbie. This cow was bred by Mr R. Shepley-Shepley, Troquhain, Balmaclellan, her sire being "Nero of Dalwyne," 13,023, and dam "Joan of Scroggiehall," 23,698. In addition to the President's Medal, this animal was awarded the Dr Gillespie Memorial Trophy.

The number of entries of Belted Galloways was the same as that for Galloways. Leading honours were secured by the Marquis of Bute, K.T., Craigeach, Kirkcowan, who won the President's Champion Medal and the Knockbrex Challenge Cup with "Mochrum Royal Record of Craigeach," 61 B (Fig. 42). This nine-year-old bull, which was shown in wonderful condition, was bred by Mr Robert Graham, Auchengassel, Twynholm, his sire being "Mark Champion," 55 B, and dam "Mark Fanny," 211 B.

There was a small but interesting display of Highland Cattle, the entry reaching a total of 23 in seven classes. The breed championship was awarded to "Corrina of Southesk," 9824 (Fig. 43), an impressive yellow four-year-old cow, shown in beautiful condition, the property of and bred by the Earl of Southesk, Kinnaird Castle, Brechin. This cow, which was also champion in the preceding year, again secured the Highland Cattle Society's Perpetual Victory Challenge Cup for the best female, while the corresponding cup for the best male was won by Mrs Maze of Achnacloich, Connel, Argyll, with "Culnadalloch II. of Achnacloich."

Ayrshire entries numbered 41, and the quality of the exhibits was up to the average. Colonel W. T. R. Houldsworth, Threave, Kirkmichael, Maybole, obtained the championship with his noted four-year-old bull "Dunlop Radiance," 25,732 (Fig. 44). This animal was shown in splendid condition. He was bred by Mrs E. L. Houison-Craufurd, Dunlop Place, Dunlop, his sire being "Dunlop Lustre," 22,453, and dam "Dunlop Mist," 79,150. The Cowhill Championship Cup, for which "Dunlop Radiance" was not eligible in view of its having won it in the preceding year, went to Mr James Howie, Hillhouse, Kilmarnock, for his five-year-old cow "Howie's Beauty 6th," 88,354.

With 51 entries, as against 61 at Edinburgh last year, there was a good display of British Friesian Cattle. The President's Champion Medal was awarded to Mr James Kilpatrick, Craigie Mains, Kilmarnock, for his two-year-old home-bred prize-winning heifer "Craigiemains Beauty" (P.I.) 103,226 (Fig. 45). This stylish heifer was got by "Dunallan (Imported 1922) Chepstow," 19,853, out of "Craigiemains Belle (P.I.)," 69,934. She also secured the MacRobert Champion Silver Bell. The reserve for championship honours was, for the third time in succession, "Douneside Pel Pilot 2nd," 28,371, a three-year-old bull, belonging to Mrs D. S. K. Eadie, The Hazelbank, Dunlop.

There was quite a fair entry of Red Polls, the number being 27. Mr Hugh Leggat, Arthurlie Park, Barrhead, won the President's Champion Medal with "Holmwood Duke," 12,333 (Fig. 46), a seven-year-old bull which was brought out in great form. This bull was bred by Messrs Hope & Company, Inholms Farm, Dorking, his sire being "Basildon Rob," 11,271, and dam "Bredfield Periwinkle," 26,657.

Fat Cattle numbered 19, and a high standard of quality was reached. The Championship was won by Mr W. Gilchrist Macbeth of Dunira, Comrie, with a home-bred yearling Aberdeen-Angus heifer (Fig. 47), got by "Reminder of Ballindalloch," 57,999, out of "Protea of Doonholm," 69,857.

HORSES.

A new feature of the Show was that the Society, for the first time, provided classes for Clydesdale Horses instead of classes for Draught Horses.

There was an excellent exhibit of Clydesdale Stallions, the classes for aged stallions and two-year-old and yearling colts being particularly strong. The Champion animal, however, was found in the class for three-year-old colts, this being "Satisfaction," 21,293 (Fig. 48), a great black horse belonging to Mr David Adams, Auchencraig, Dumbarton. He was bred by Mr William Kerr, Bandeath, Stirling, his sire being "Dupplin Castle," 20,747, and dam "Rosiecraig," 56,009. In addition to the President's Medal, this Colt was awarded the Cawdor Challenge Cup for the best Clydesdale Stallion or Colt.

Clydesdale Geldings were an exceptionally good show, the three classes being well filled. In addition to the Champion Medal, the President offered a Silver Cup for the best Clydesdale Gelding. Both of these awards were secured by Mr James Fleming, Barns of Claverhouse, Dundee, for his well-known five-year-old brown gelding "Banker" (Fig. 49), which was bred by Mr Adam Will, Cushieston, Rayne, his sire being "Blackwood Banker," 19,353.

Clydesdale Mares and Fillies were not so strong numerically as the Stallions, but several notable animals were forward. The President's Champion Medal and the Renfrewshire Perpetual Gold Challenge Cup were secured by Mr Alexander Murdoch, East Hallside, Hallside, Lanarkshire, with his noted four-year-old roan mare "Orange Blossom" (Fig. 50). This mare was bred by Mr John Stirling, Parkhead, Alloa, and got by "Dunure Footprint," 15,203, out of "Dunure Essence," 40,834. The Cawdor Challenge Cup for the best Clydesdale Mare or Filly, for which neither "Orange Blossom" nor "Brunstane Phyllis"—the Reserve for the Championship—were eligible, both having won it previously, was awarded to Mr Alexander Murdoch's two-year-old brown filly "Mary Rose."

Another new departure was the provision of classes for Shire horses. These attracted several fine specimens of the breed, and were the object of much attention and favourable comment. The President's Champion Medal was awarded to "Erfyl Lady Grey," 88,450 (Fig. 51), a famous thirteen-year-old grey mare, exhibited by Mr G. R. C. Foster, Anstey Hall, Trumpington, Cambridge, and bred by Mr William Vaughan, Hafod, Llanerfyl, Welshpool. Her sire was "Moors Kitchener," 25,443, and dam "Erfyl Lady White," 88,451.

There was a small show of Hunters. Sir John W. Buchanan-Jardine of Castlemilk, Bart., Lockerbie, obtained the Championship with "Sepia," 6991 (Fig. 52), a two-year-old bay Filly, bred by Exhibitor, and got by "Harmonius" out of "Brunette."

Highland and Western Island Ponies were not so numerous as last year, although several good animals were on view.

The Championship of both sections was carried off by Mrs Fletcher of Rosehaugh, Avoch. The winning animal in the Highland section was "Lady Kilcoy," 3375 (Fig. 53), a typical sixteen-year-old home-bred grey mare of whom the sire was "Glenbruar," 331, and dam "Kilcoy Dunnie," 3380. The winner of the Western Island section was "Lady Phœnix," 3376 (Fig. 54), a sixteen-year-old grey mare, also bred at Rosehaugh from the same sire, her dam being "Phœnix," 2150.

Shetland Ponies, with an entry of 41, made an excellent display, and proved, as usual, a source of attraction and interest. As on many former occasions, Mrs Etta Duffus, Penniwells, Elstree, Herts., was awarded the President's Champion Medal, the winning animal being "Marvel of Earlshall" (Fig. 56), a stylish four-year-old black stallion, bred by Mr R. W. R. Mackenzie, Carpow, Newburgh. He was sired by "Helmet of Earlshall," 408, his dam being "Margery of Weddiker," 3930.

The Championship for Horses in Harness was won by Mr John Highet, Curtecan, Ayr, with his well-known "Extra Stock" mare "Wensleydale Flirt," 26,109 (Fig. 55), a brown six-year-old, bred by Mr J. W. G. Smith, Marlbeck House, Aysgarth.

Horses entered for Jumping were less numerous than last year, but there was no falling off of interest in the competitions.

SHEEP, PIGS, &C.

Although the entry of Sheep was 349 as compared with 493 the preceding year, the principal breeds made a creditable display.

Goats were small in numbers, and Pigs were also poorly represented compared with last year.

The Winners of the President's Champion Medals are shown in Figs. 57 to 67.

The sections for Poultry, Rabbits, Dairy Produce, Honey, Wool, and Rural Industries were fairly well filled, and each of these claimed the attention of a large number of interested visitors.

Competitions for Horse-Shoeing were again well patronised, the work of the competitors reaching the usual high standard.

The Live-Stock Judging Competition was continued, improvements in procedure being introduced as a result of last year's experience. There was a large entry, being nearly double that of the preceding year, and the interest in the competition was fully maintained.

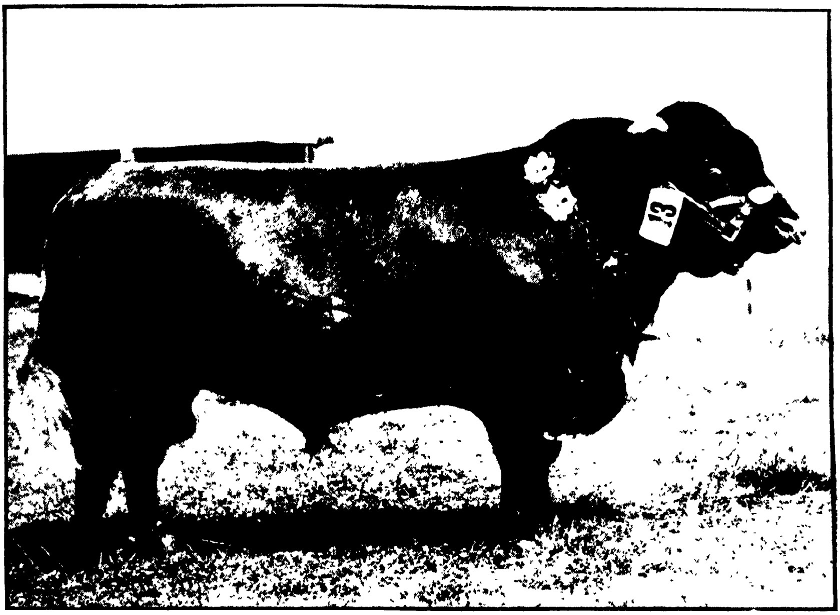

Fig. 39.—SHORTHORN BULL, "BALCAIRN ROYAL STANDARD" 204,694.

Winner of President's Medal for best Shorthorn, Aberdeen Show, 1928. The property of Mr Robert L. P. Duncan, Pitpointie, Auchterhouse, Dundee. Bred by Mr Falconer L. Wallace of Candacraig and Balcairn, Balcairn, Oldmeldrum. Age two years and seven months.

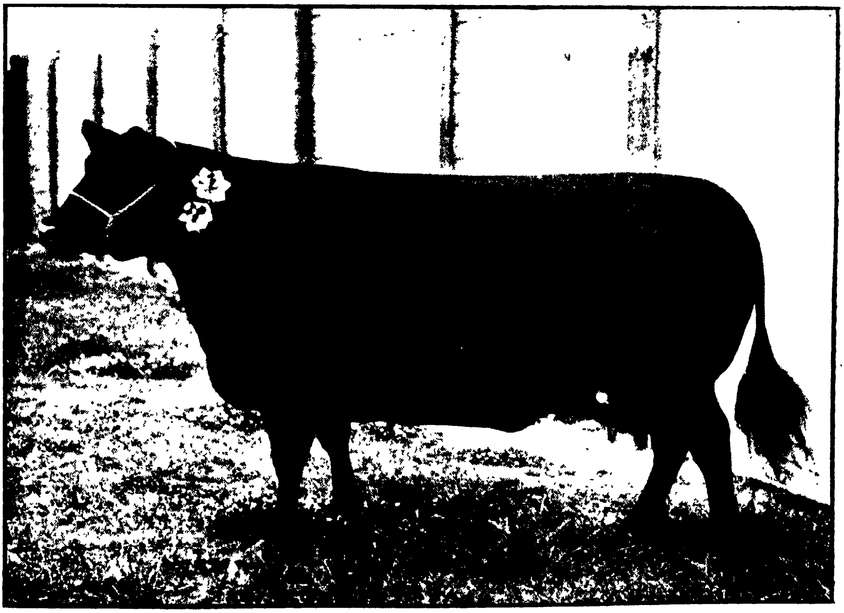

Fig. 40.—ABERDEEN-ANGUS COW, "GAMMER IONA" 73,458.

Winner of President's Medal for best Aberdeen-Angus animal, Aberdeen Show, 1928. Bred by and the property of Mr James Beddie, Banks, Strichen. Age five years and five months.

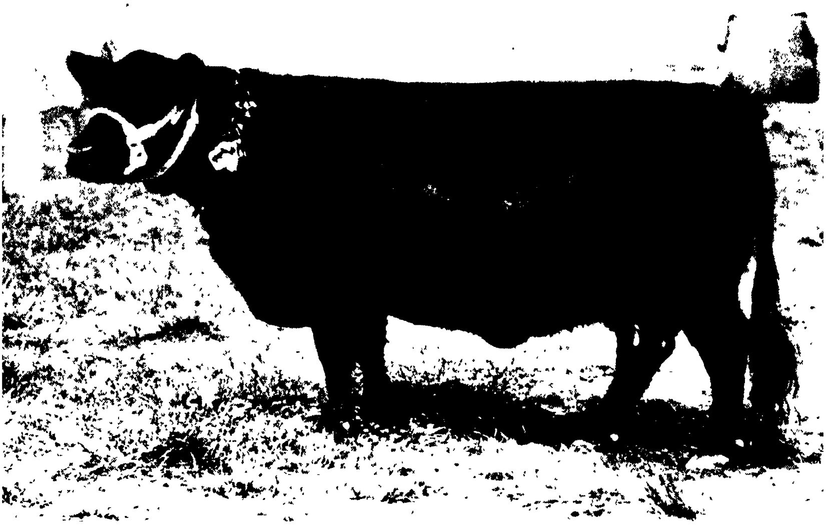

Fig. 41.—Galloway Cow, "Joan 6th of Scroggiehall" 28,801.

Winner of President's Medal for best Galloway, Aberdeen Show, 1928. The property of Mr R. Jardine Paterson, Balgray, Lockerbie. Bred by Mr R. Shepley-Shepley, Troquhain, Balmaclellan. Age six years and four months.

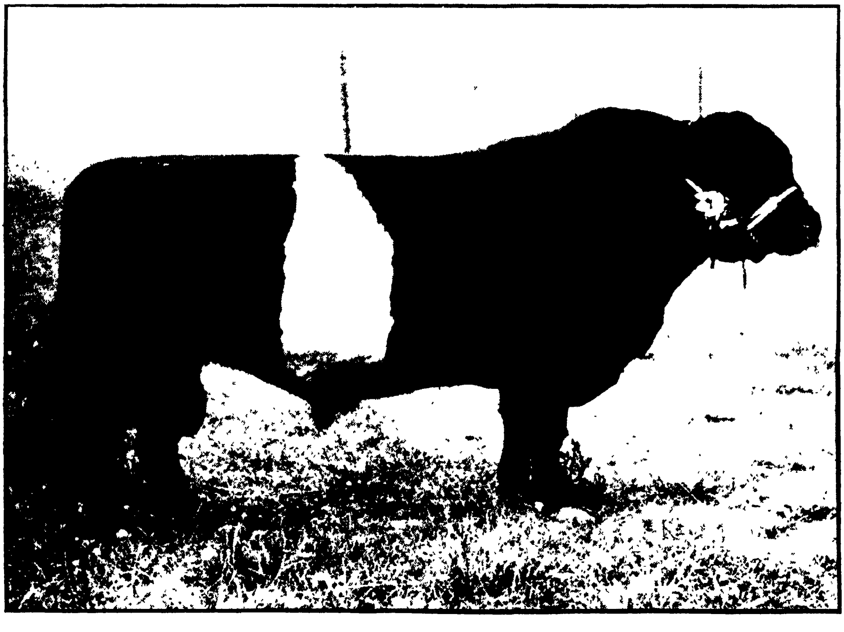

Fig. 42.—Belted Galloway Bull, "Mochrum Royal Record of Craigeach" 61 B.

Winner of President's Medal for best Belted Galloway animal, Aberdeen Show, 1928. The property of The Marquis of Bute, K.T., Craigeach, Kirkcowan. Bred by Mr Robert Graham, Auchengassel, Twynholm. Age nine years and five months.

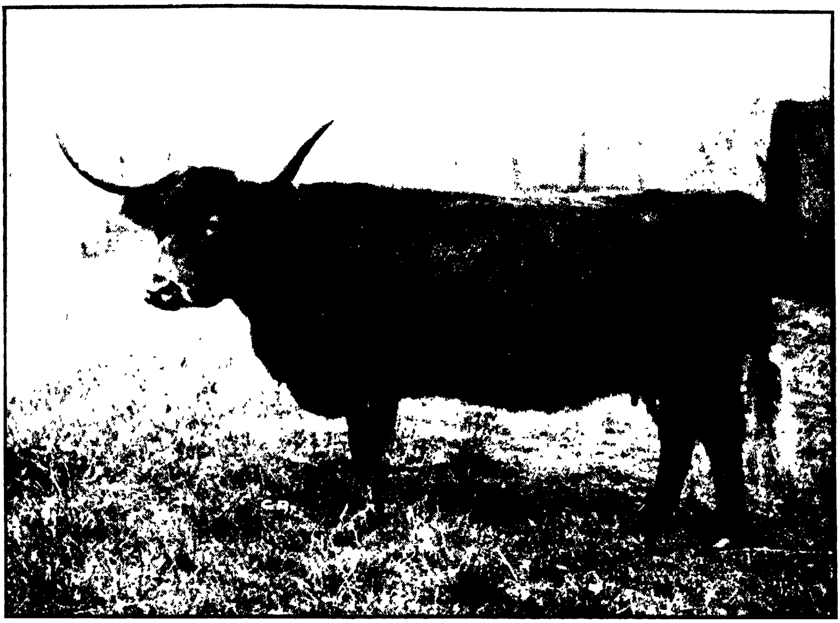

Fig. 43.—Highland Cow, "Corrina of Southesk" 9821.

Winner of President's Medal for best Highland animal, Aberdeen Show, 1928. Bred by and the property of The Earl of Southesk, Kinnaird Castle, Brechin. Age four years and five months.

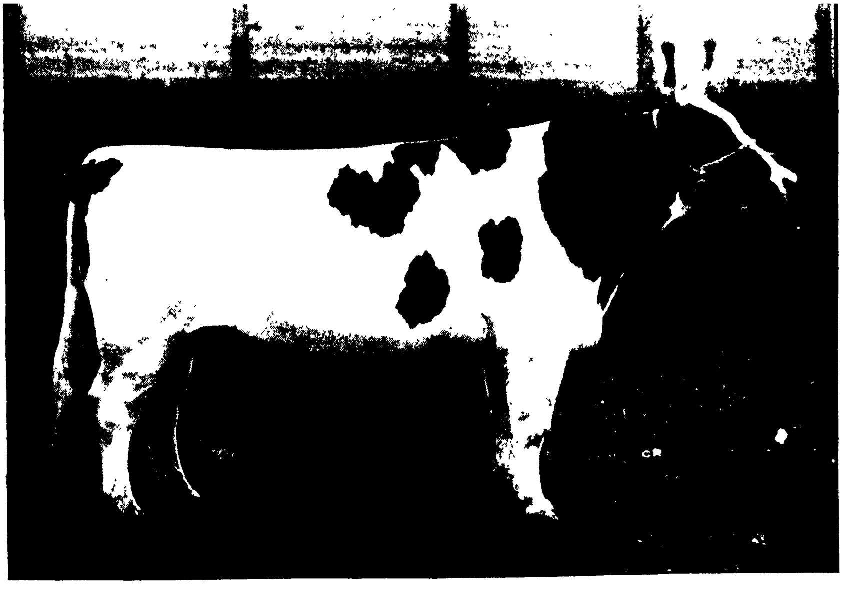

Fig. 44.—Ayrshire Bull, "Dunlop Radiance" 25,732.

Winner of President's Medal for best Ayrshire, Aberdeen Show, 1928. The property of Colonel W. T. R. Houldsworth, Threave, Kirkmichael, Maybole. Bred by Mrs E. L. Houison-Craufurd Dunlop Place, Dunlop. Age three years and eight months

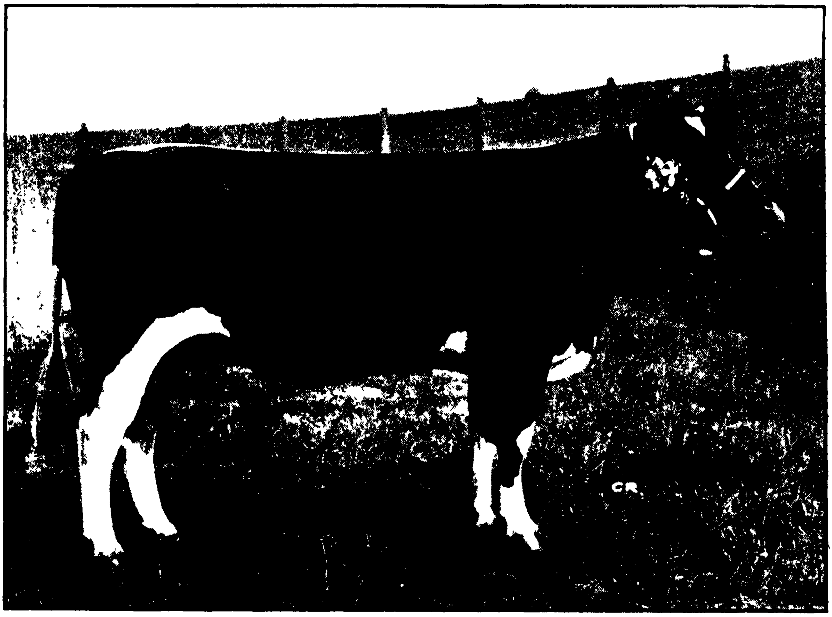

Fig. 45.—British Friesian Heifer, "Craigiemains Beauty" (P.I.) 103,226.

Winner of President's Medal for best British Friesian animal, Aberdeen Show, 1928. Bred by and the property of Mr James Kilpatrick, Craigie Mains, Kilmarnock. Age two years and two months.

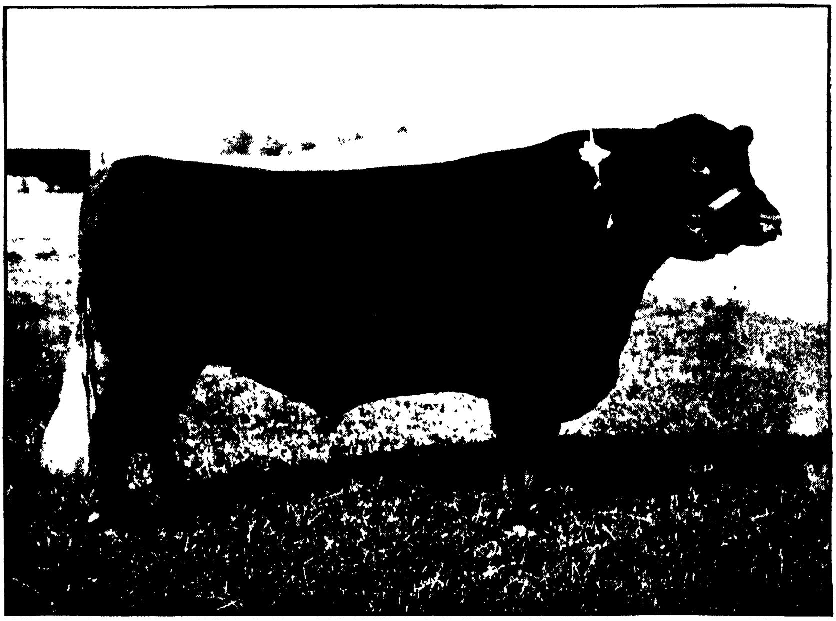

Fig. 46.—Red Poll Bull, "Holmwood Duke" 12,333.

Winner of President's Medal for best Red Poll animal, Aberdeen Show, 1928. The property of Mr Hugh Leggat, Arthurlie Park, Barrhead. Bred by Messrs Hope & Co., Inholms Farm, Dorking. Age six years and eight months.

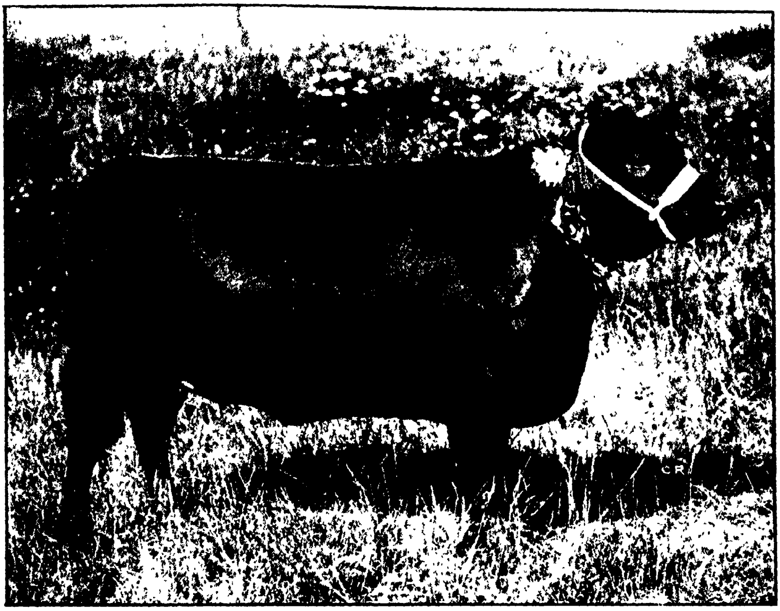

Fig. 47.—Aberdeen-Angus Heifer.

Winner of President's Medal for best Fat animal, Aberdeen Show, 1928. Bred by and the property of Mr W. Gilchrist Macbeth, Dunira, Comrie. Age one year and six months

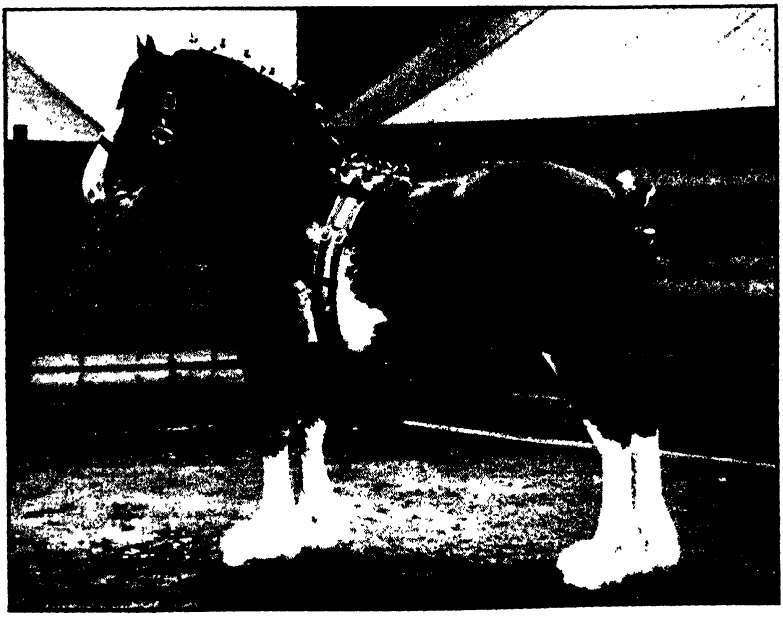

Fig. 48.—Clydesdale Colt, "Satisfaction" 21,293.

Winner of President's Medal for best Clydesdale Stallion or Colt, Aberdeen Show, 1928. The property of Mr David Adams, Auchencraig, Dumbarton. Bred by Mr William Kerr, Bandeath, Stirling. Age three years and two months.

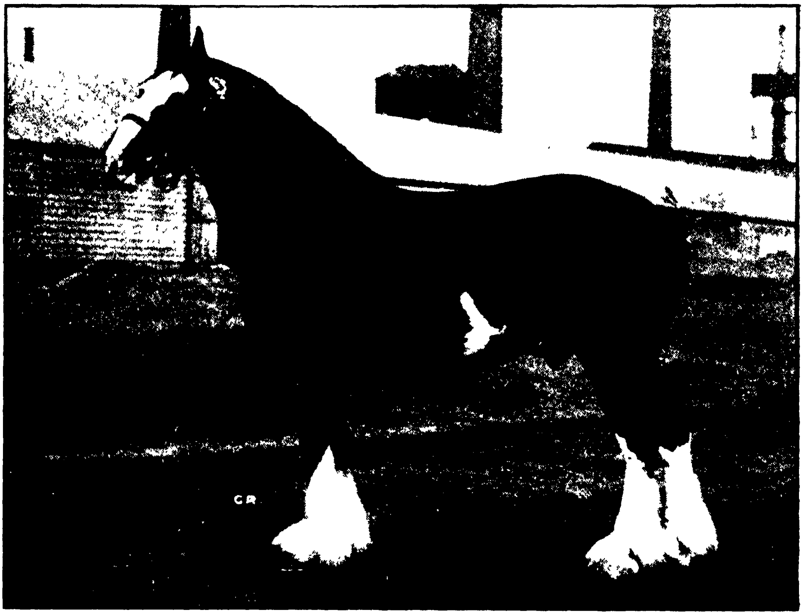

Fig. 49.—Clydesdale Gelding, "Banker."

Winner of President's Medal for best Clydesdale Gelding, Aberdeen Show, 1928. The property of Mr James Fleming, Barns of Claverhouse, Dundee. Bred by Mr Adam Will, Cushieston, Rayne. Age five years.

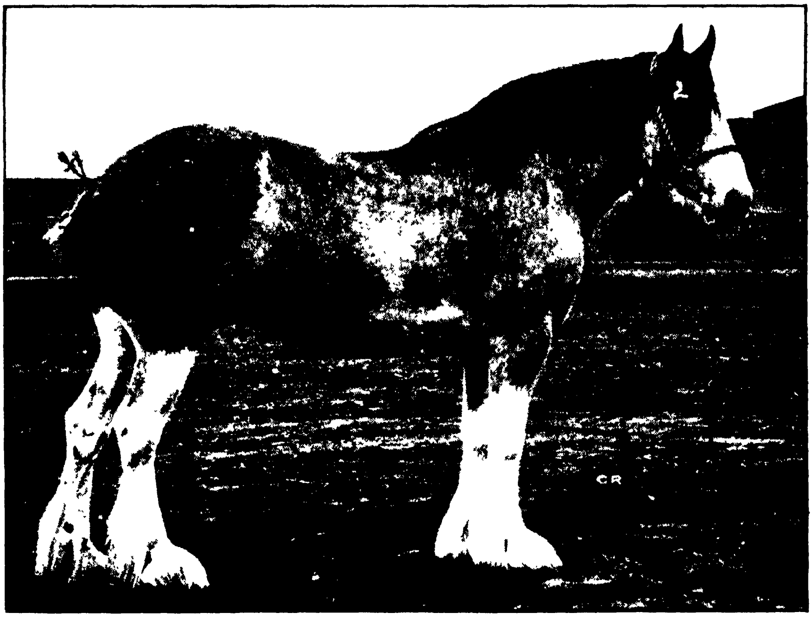

Fig. 50.—Clydesdale Mare, "Orange Blossom."

Winner of President's Medal for best Clydesdale Mare or Filly, Aberdeen Show, 1928. The property of Mr Alexander Murdoch, East Hallside, Hallside, Glasgow. Bred by Mr John Stirling, Parkhead, Alloa. Age four years and three months.

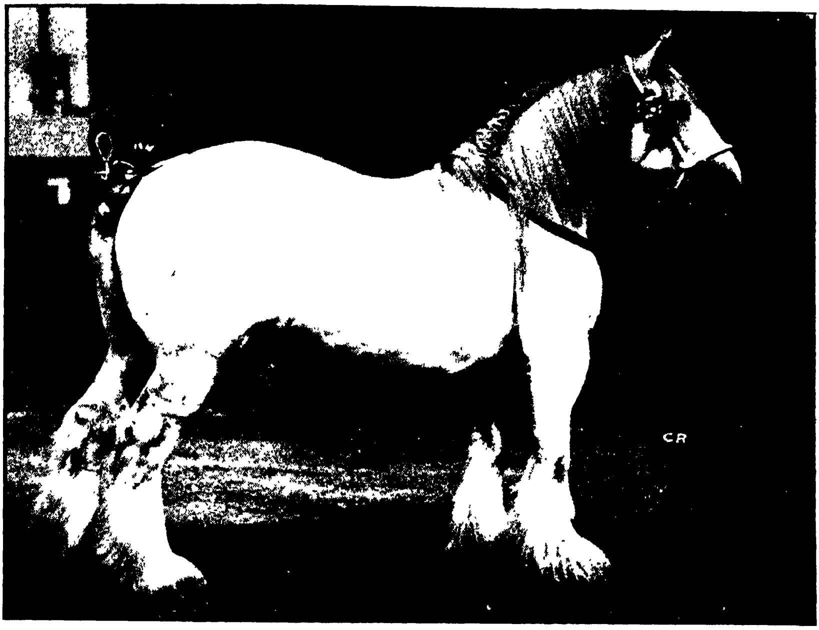

Fig. 51.—SHIRE MARE, "ERFYL LADY GREY" 88,450.

Winner of President's Medal for best Shire, Aberdeen Show, 1928. The property of Mr G. R. C. Foster, Anstey Hall, Trumpington, Cambridge. Bred by Mr William Vaughan, Hafod, Llanerfyl, Welshpool, Montgomeryshire. Age thirteen years.

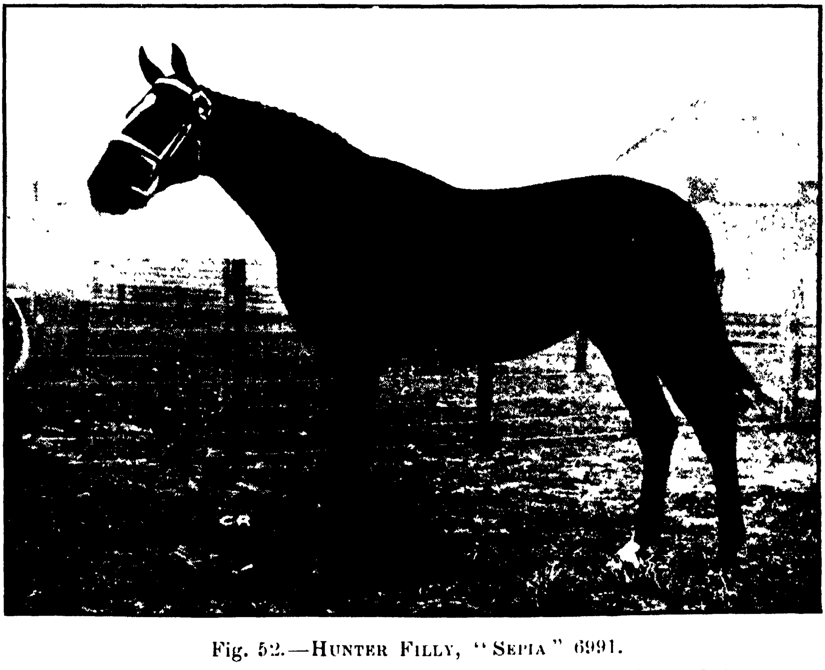

Fig. 52.—HUNTER FILLY, "SEPIA" 6991.

Winner of President's Medal for best Hunter, Aberdeen Show, 1928. Bred by and the property of Sir John William Buchanan-Jardine of Castlemilk, Bart., Castlemilk, Lockerbie. Age two years and two months.

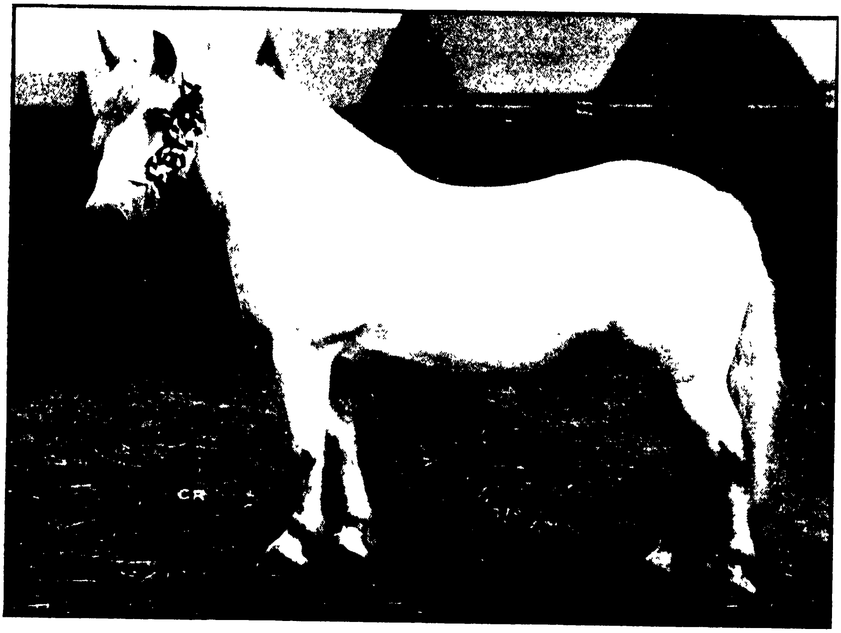

Fig. 53.—Highland Pony Mare, "Lady Kilcoy" 3375.

Winner of President's Medal for best Highland Pony, Aberdeen Show, 1928. The property of Mrs Fletcher of Rosehaugh, Avoch. Bred by the late Mr J. Douglas Fletcher, Rosehaugh, Avoch. Age sixteen years and one month.

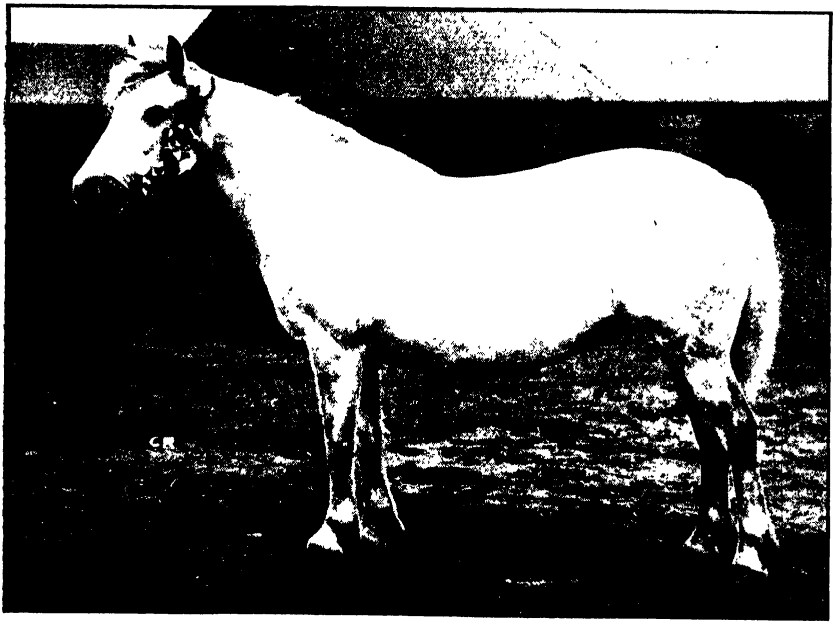

Fig. 54.—Western Island Pony Mare, "Lady Phœnix" 3376.

Winner of President's Medal for best Western Island Pony, Aberdeen Show, 1928. The property of Mrs Fletcher, of Rosehaugh, Avoch. Bred by the late Mr J. Douglas Fletcher, Rosehaugh, Avoch. Age sixteen years.

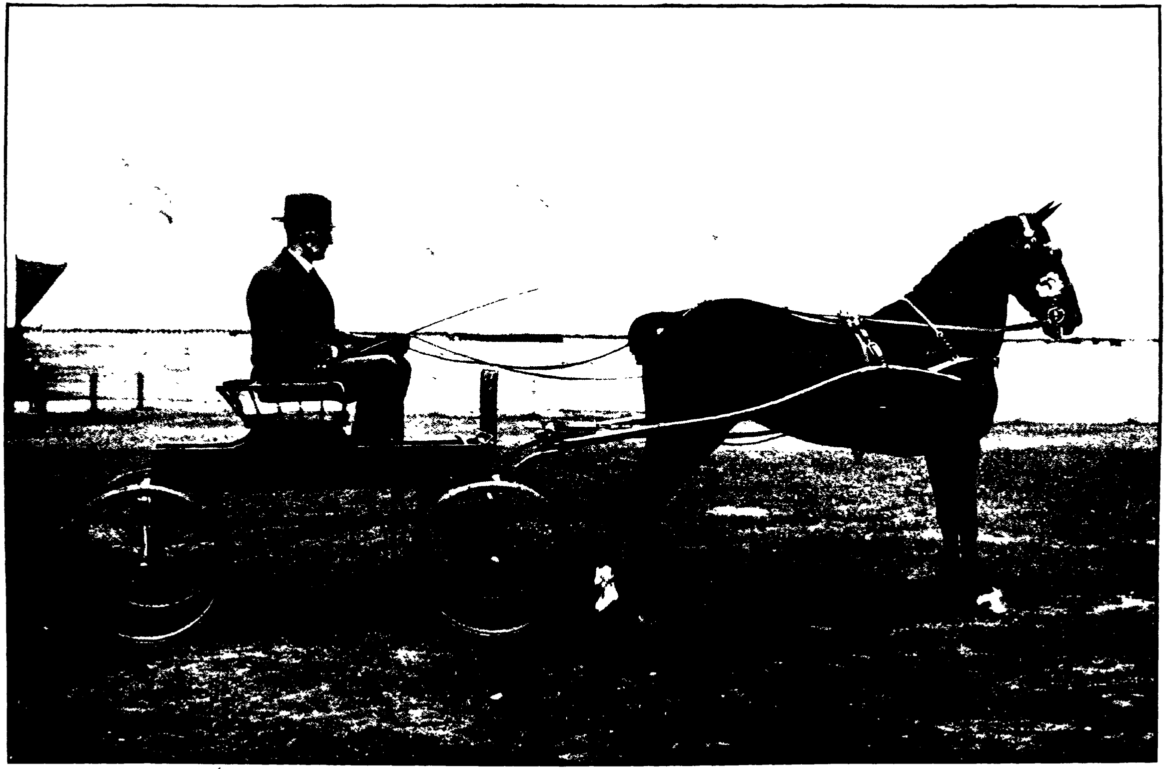

Fig. 55.—MARE IN HARNESS, "WENSLEYDALE FLIRT" 26,109.

Winner of President's Medal for best animal in the Classes for Horses in Harness, Aberdeen Show, 1928. The property of Mr John Highet, Curtecan, Ayr. Bred by Mr J. W. G Smith, Marlbeck House, Aysgarth. Age six years.

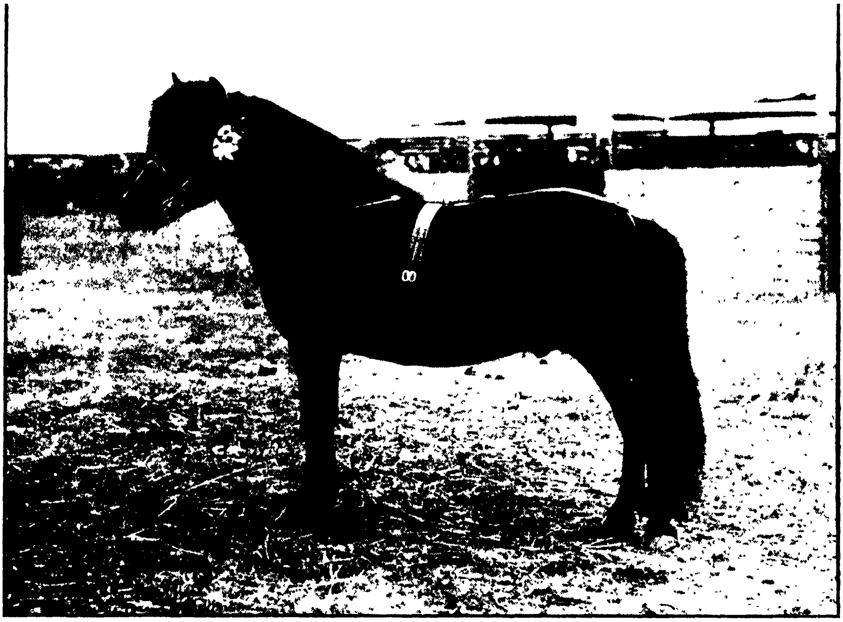

Fig. 56.—SHETLAND PONY STALLION, "MARVEL OF EARLSHALL."

Winner of President's Medal for best Shetland Pony, Aberdeen Show, 1928. The property of Mrs Etta Duffus, Penniwells, Elstree, Herts. Bred by Mr R. W. R. Mackenzie, Carpow, Newburgh, Fife. Age four years and one month.

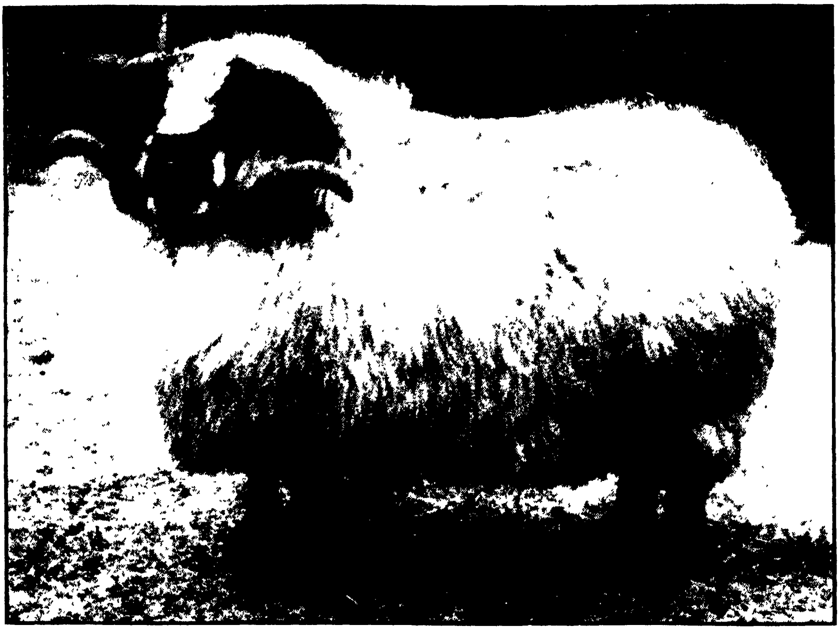

Fig. 57.—BLACKFACE TUP, "FIELD-MARSHAL."

Winner of President's Medal for best Blackface Sheep, Aberdeen Show, 1928. The property of Mr Charles Cadzow, Weston, Dunsyre, Carstairs Junction. Bred by Mr Gavin Hamilton, South Cumberhead, Lesmahagow. Age two shear.

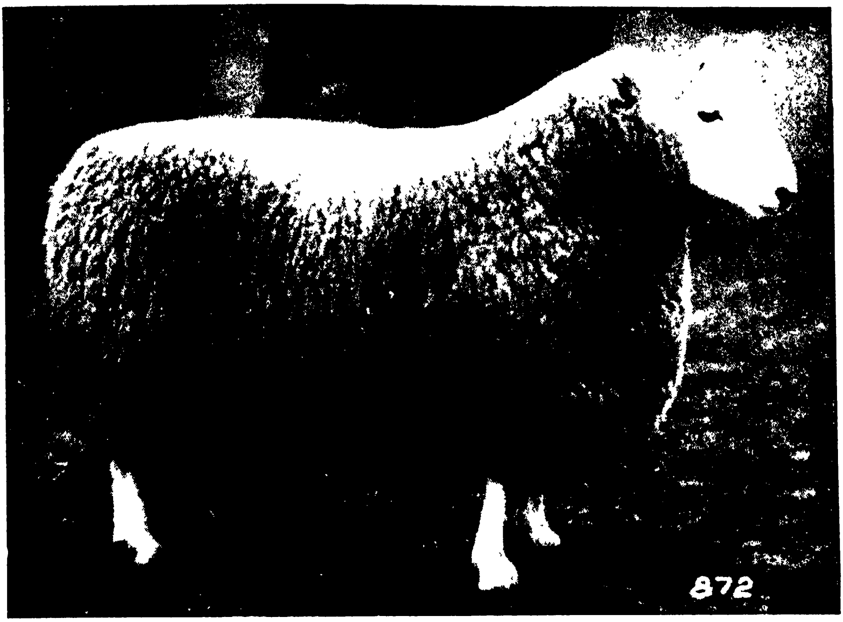

Fig. 58.—Cheviot Shearling

Winner of President's Medal for best Cheviot Sheep, Aberdeen Show, 1928. Bred by and the property of Mr John Robson, Newton, Tarset, North Tyne.

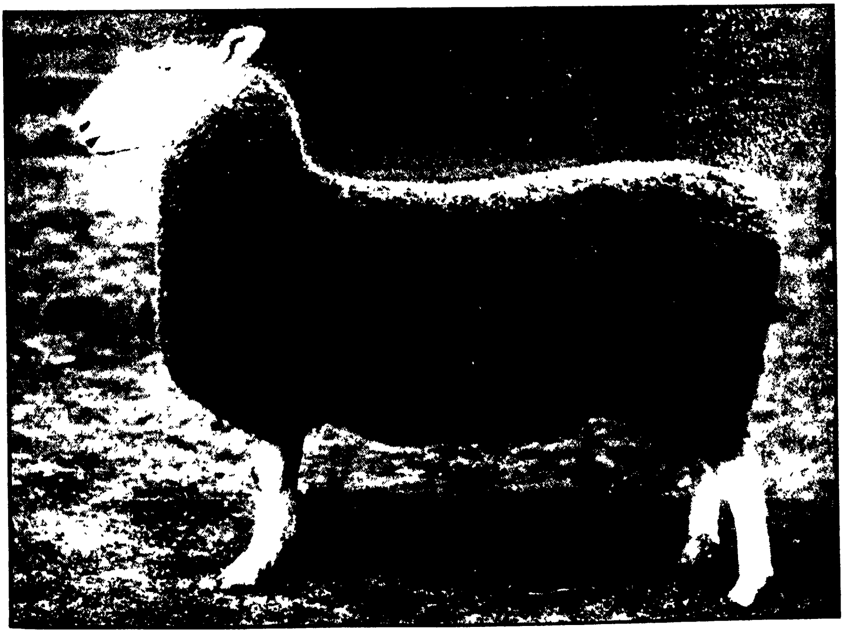

Fig. 59.—Border Leicester Ewe.

Winner of President's Medal for best Border Leicester Sheep, Aberdeen Show, 1928. Bred by and the property of Mr Alexander Niven, Ayton, Newburgh, Fife. Age two shear.

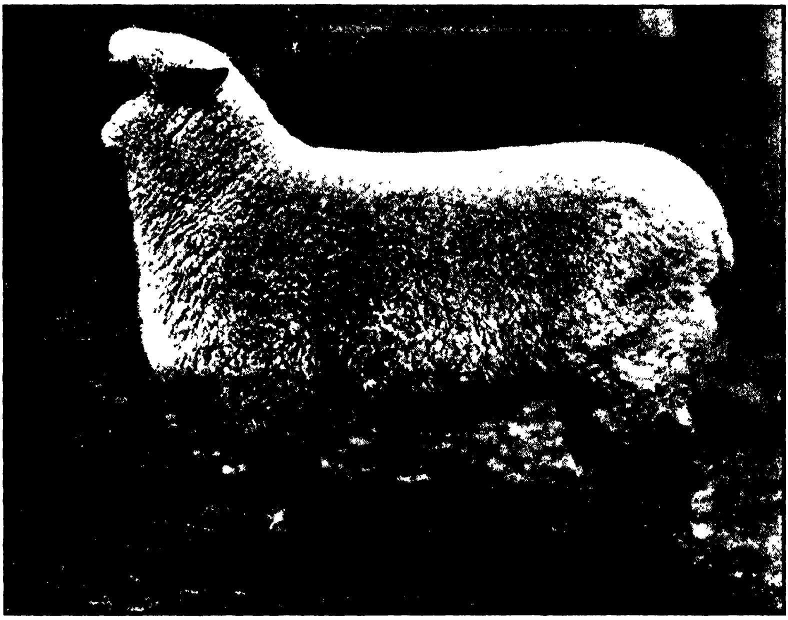

Fig. 60.—OXFORD-DOWN TUP LAMB.

Winner of President's Medal for best pen of Oxford-Down Sheep, Aberdeen Show, 1928. Bred by and the property of Messrs T. & M. Templeton, Sandyknowe, Kelso.

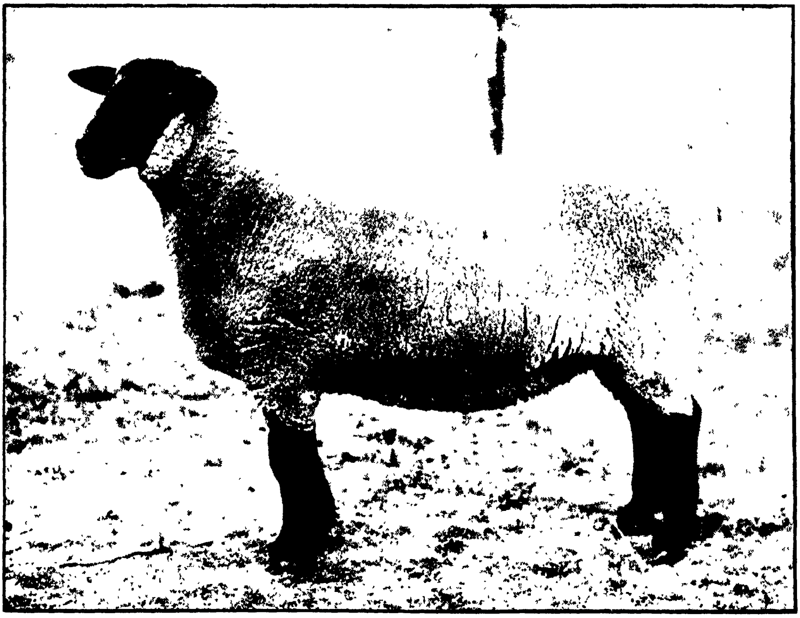

Fig. 61.—SUFFOLK SHEARLING EWE.

Winner of President's Medal for best pen of Suffolk Sheep, Aberdeen Show, 1928. Bred by and the property of Mr William Rintoul, Kilmux, Leven.

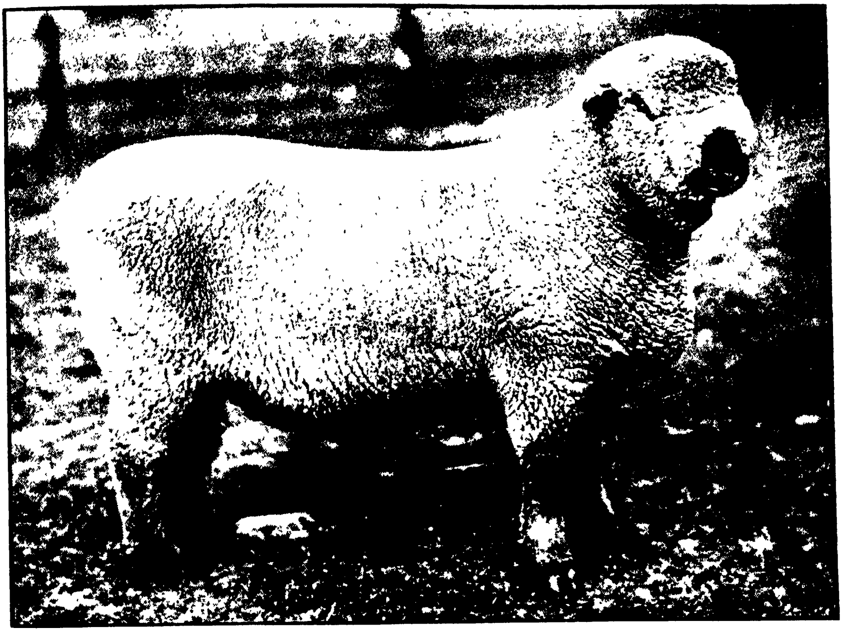

Fig. 62.—SHROPSHIRE SHEARLING TUP.

Winner of President's Medal for best Shropshire Sheep, Aberdeen Show, 1928. Bred by and the property of Mr T. A. Buttar, Corston, Coupar-Angus.

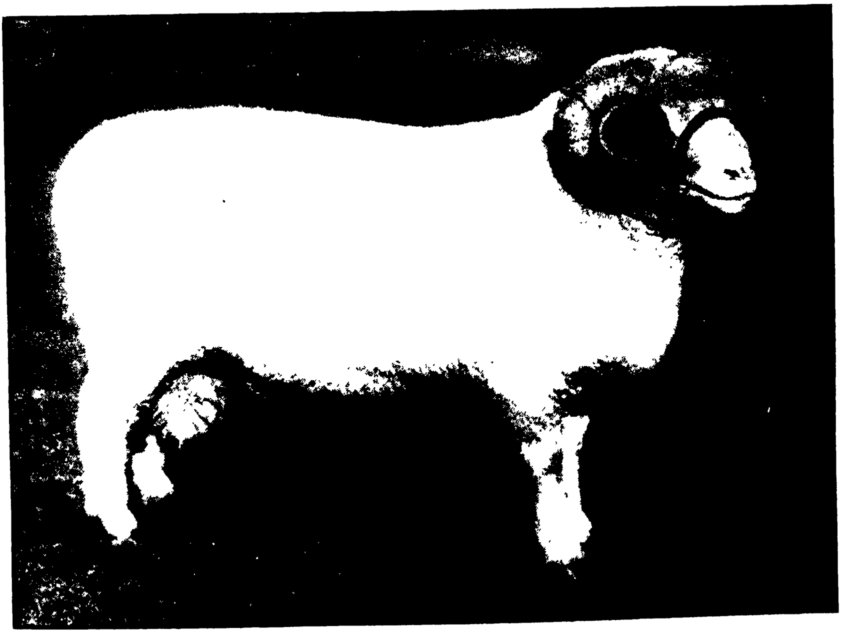

Fig. 63.—DORSET HORN SHEARLING TUP, "SYMONDSBURY NO. 390" 5462.

Winner of President's Medal for best Dorset Horn Sheep, Aberdeen Show, 1928. The property of The Earl of Elgin and Kincardine, C.M.G., Broomhall, Dunfermline. Bred by Mr Alfred Johnston, Symondsbury, Bridgeport.

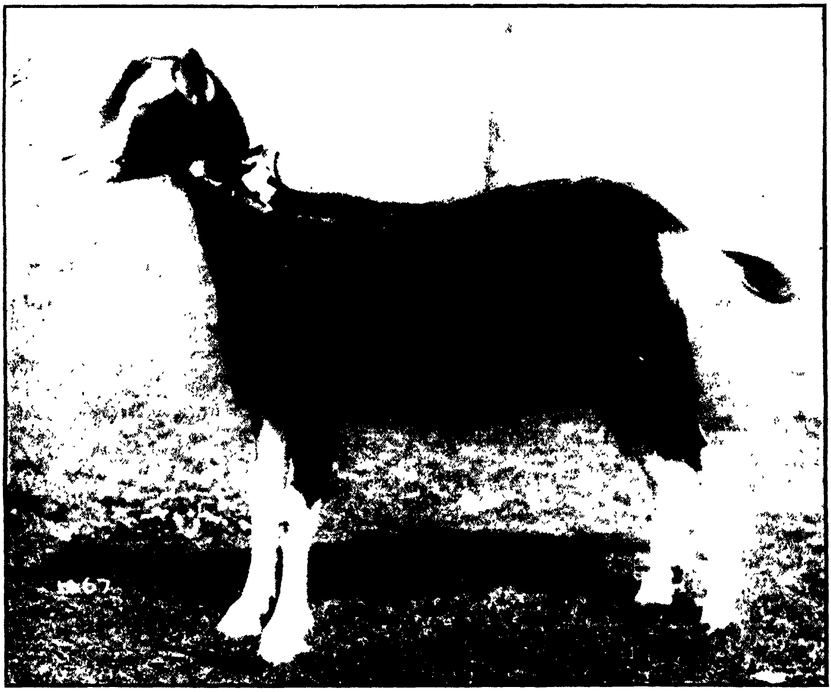

Fig. 64.—British-Alpine Goatling, "Riding Thistle Fairy" H.B. 8059.

Winner of President's Medal for best animal in the Goat Classes, Aberdeen Show, 1928. Bred by and the property of Miss Marjorie Henderson, The Riding, Hexham. Age one year and three months.

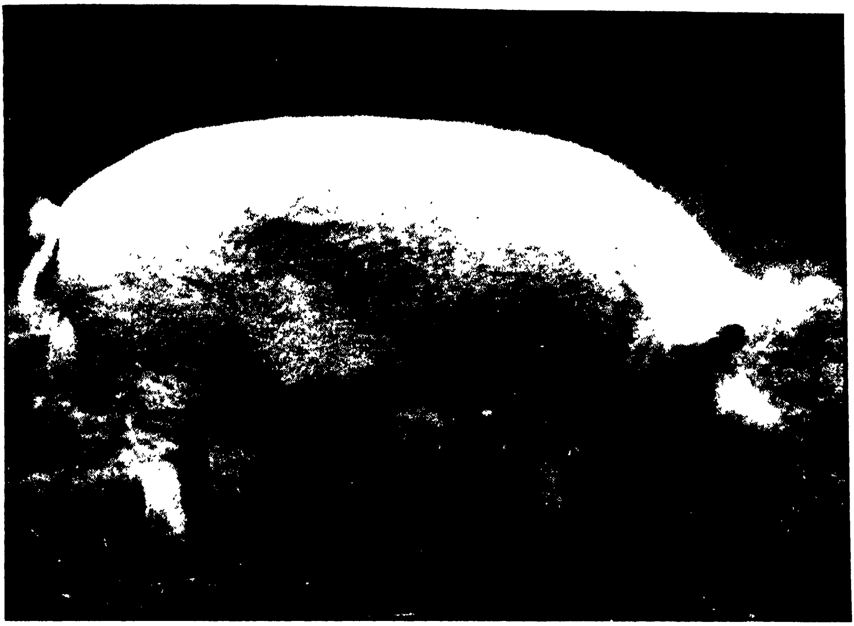

Fig. 65.—Large White Boar, "Wentworth Lion 23rd" 53,973.

Winner of President's Medal for best Large White Pig, Aberdeen Show, 1928. The property of Messrs Chivers & Sons, Limited, Histon, Cambridge. Bred by Mr George Payne, The Wentworth, Elmsthorpe, Earl Shilton, Leicester. Age three years and ten months.

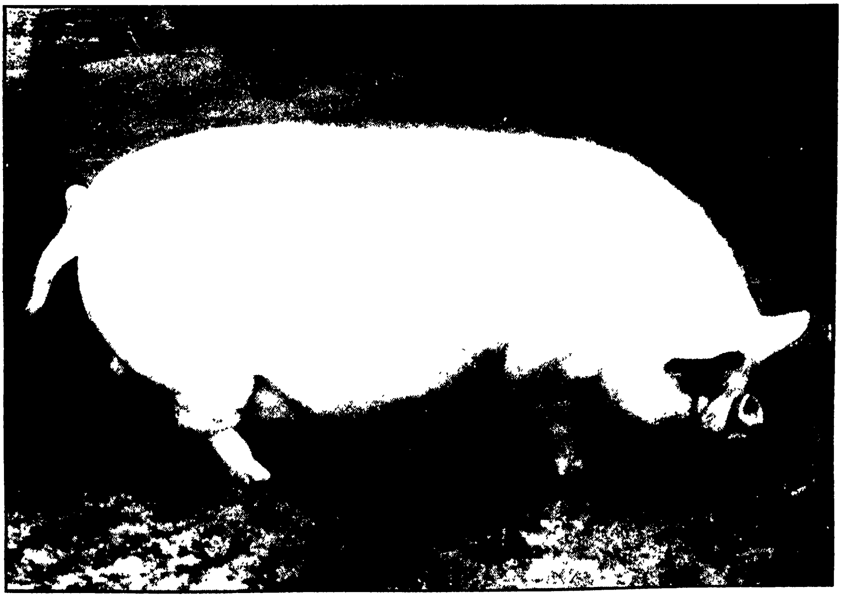

Fig. 66.—Middle White Sow, "Histon Woodlands 6th."

Winner of President's Medal for best Middle White Pig, Aberdeen Show, 1928. Bred by and the property of Messrs Chivers & Sons, Limited, Histon, Cambridge. Age one year and six months.

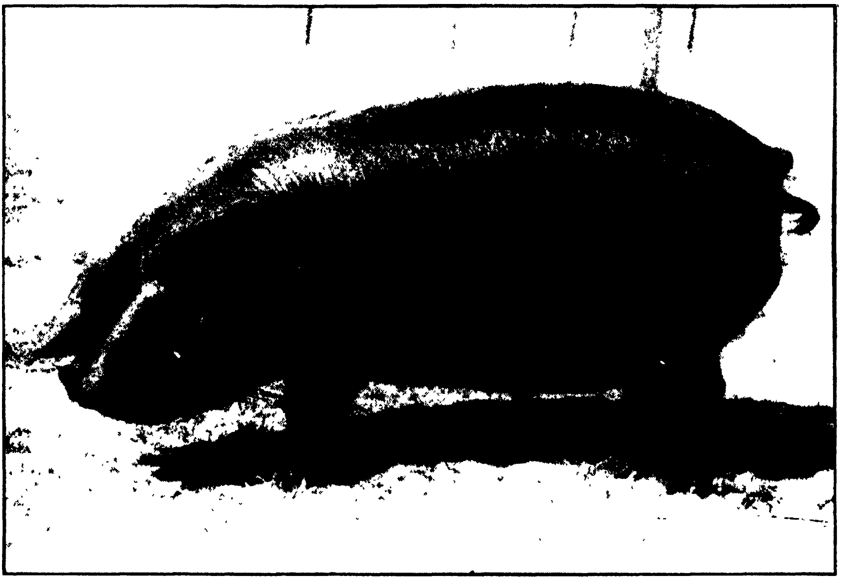

Fig. 67.—LARGE BLACK SOW, "YAM BIDDY 2ND" D. 196.

Winner of President's Medal for best Large Black Pig, Aberdeen Show, 1928. Bred by and the property of Messrs M'Caig & Goodchild, Foreside of Cairn, Kirriemuir. Age one year and six months.

PREMIUMS AWARDED BY THE SOCIETY IN 1928.

ABERDEEN SHOW.

24th, 25th, 26th, and 27th July 1928.

ABBREVIATIONS.—V., *Very Highly Commended.* H., *Highly Commended.* C., *Commended.*

CATTLE

SHORTHORN.

PRESIDENT'S CHAMPION MEDAL for best Shorthorn.

No. 13 Duncan, Robert L. P., Pitpointie, Auchterhouse, Dundee, "Balcairn Royal Standard" (204,694).

Reserve—No. 33 Marshall, Albert James, Bridgebank, Stranraer, "Bridgebank Vulcan."

Paisley Perpetual Gold Challenge Cup, value £300, *for best Shorthorn Animal, "Extra Stock" being eligible to compete.* This Cup, along with an endowment of £600, was provided from money collected in Paisley by the late Provost Muir MacKean, and is in commemoration of the Society's first Show at Paisley in 1913.

No. 13 Duncan, Robert L. P., Pitpointie, Auchterhouse, Dundee, "Balcairn Royal Standard" (204,694).

Reserve—No. 33 Marshall, Albert James, Bridgebank, Stranraer, "Bridgebank Vulcan."

The Duthie Perpetual Challenge Cup, value £150, *for best animal in the Shorthorn Classes, "Extra Stock" being eligible to compete.* This Cup was gifted by the late Mr William Duthie, Collynie.

No. 13 Duncan, Robert L. P., Pitpointie, Auchterhouse, Dundee, "Balcairn Royal Standard" (204,694).

Best Shorthorn Bull in the Show, entered or eligible for entry in Coates's Herd-Book—£20, given by the Shorthorn Society.

No. 13 Duncan, Robert L. P., Pitpointie, Auchterhouse, Dundee, "Balcairn Royal Standard" (204,694).

Silver Medal *to the Breeder of the winner of above Prize*—given by the Shorthorn Society.

No. 13 Wallace, Falconer L., of Candacraig and Balcairn, Balcairn, Oldmeldrum.

Breeder of best Bull of any age in Classes 1, 2, 3, 4, *and* 5—The Silver Medal.

No. 13 Wallace, Falconer L., of Candacraig and Balcairn, Balcairn, Oldmeldrum.

CLASS 1. BULL, born before 1st December 1925.—PREMIUMS, £15, £10, £5, and £3.

1st No. 8 Marshall, Albert James, Bridgebank, Stranraer, "Beaufort Royal Prince" (196,232).
2nd No. 7 Lovat, General Lord, K.T., Beaufort Castle, Beauly, and Messrs MacGillivray of Calrossie, Kirkton, and Glastullich, Nigg, Ross-shire, "Naemoor Ian" (209,839).
3rd No. 2 Bruce, Robert, Heatherwick, Inverurie, "Dunglass Governor" (198,219).
4th No. 1 Anderson, William, Saphock, Oldmeldrum, "Balcairn Bullion" (195,863).
V No. 5 Fletcher, Captain A. M. Talbot, of Saltoun, Saltoun Hall, Pencaitland, East Lothian, "Saltoun Cruiser" (193,849).
H No. 11 Webster, J. Duthie, Collynie, Tarves, "King William" (173,110).
C No. 6 Fletcher, Mrs, of Rosehaugh, Avoch, "Collynie Royal Leader" (188,656).

CLASS 2. BULL, born on or after 1st December 1925, and before 1st April 1926.—PREMIUMS, £15, £10, £5, and £3.

1st No. 13 Duncan, Robert L. P., Pitpointie, Auchterhouse, Dundee, "Balcairn Royal Standard" (204,694).
2nd No. 12 Alexander & Addie, Newbiggin, Cambus, "Collynie Red King" (214,704).

CLASS 3. BULL, born on or after 1st April 1926, and not later than 30th November 1926.—PREMIUMS, £12, £8, £4, and £2.

1st No. 15 Marshall, Albert James, Bridgebank, Stranraer, "Rosehaugh Bootlegger" (218,733).

CLASS 4. BULL, born on or after 1st December 1926, and not later than 31st March 1927.—PREMIUMS, £12, £8, £4, and £2.

1st	No. 33	Marshall, Albert James, Bridgebank, Stranraer, "Bridgebank Vulcan."
2nd	No. 31	MacGillivray, Captain John, of Calrossie, Nigg, Ross-shire, "Calrossie Cease Fire."
3rd	No. 18	Alexander & Addie & Hughes, Newbiggin, Cambus, "Sanquhar Socerer."
4th	No. 21	Burr, James R., Mains of Schivas, Ellon, "Collynie Barnone."
V	No. 23	Cathcart, Lady, Cluny Castle, Sauchen, "Cluny Robin Augustus."
H	No. 38	Wallace, Falconer L., of Candacraig and Balcairn, Balcairn, Oldmeldrum, "Balcairn Nigel."
C	No. 26	Durno, James & Leslie, Uppermill, Tarves, "Border Chief."
C	No. 25	Durno, James, Crichie, Inverurie, "Calrossie Concentration."
C	No. 27	Gordon, Alexander Paterson, of Bindal, Portmahomack, "Cambus Hustler."

CLASS 5. BULL, born on or after 1st April 1927.—PREMIUMS, £10, £6, £4, and £2.

The Emilio R. Casares, jun., "Junior Champion Cup," value £50, *for best Shorthorn Bull in Class 5, calved on or after 1st April of the year preceding the Show, that has passed the tuberculin test.* Given by Mr Emilio R. Casares, jun.

No. 50 MacGillivray, Captain John, of Calrossie, Nigg, Ross-shire, "Calrossie Officer Commanding."
Reserve—No. 46 Duncan, Robert L. P., Pitpointie, Auchterhouse, Dundee, "Benedictine."

1st	No. 50	MacGillivray, Captain John, of Calrossie, Nigg, Ross-shire, "Calrossie Officer Commanding."
2nd	No. 46	Duncan, Robert L. P., Pitpointie, Auchterhouse, Dundee, "Benedictine."
3rd	No. 53	Marshall, Albert James, Bridgebank, Stranraer, "Balcairn Celt."
4th	No. 40	Alexander & Addie, Newbiggin, Cambus, "Cambus Hercules."
V	No. 48	Fraser, Malcolm F., Culcairn, Alness, "Culcairn Broadhooks Gold."
H	No. 49	Law, Messrs, Mains of Sanquhar, Forres, "Sanquhar True Blue."
C	No. 57	Maxwell, David, Panlathy Mill, Carnoustie, "Royal Regent."
C	No. 45	Cathcart, Lady, Cluny Castle, Sauchen, "Cluny Lavender Victor."
C	No. 47	Fletcher, Captain A. M. Talbot, of Saltoun, Saltoun Hall, Pencaitland, East Lothian, "Saltoun's Gold Victor."

Silver Cup, value 15 Guineas, *for best Group of Shorthorns, consisting of a Bull, a Cow, and a Heifer, "Extra Stock" being eligible to compete.* Presented by Mr Robert W. Smith, M.P., Crowmallie, Pitcaple, Aberdeenshire.

Nos. 38, 68, 80 Wallace, Falconer L., of Candacraig and Balcairn, Balcairn, Oldmeldrum.

Best Shorthorn Female in the Show, entered or eligible for entry in Coates's Herd-Book—£20, given by the Shorthorn Society.

No. 80 Wallace, Falconer L., of Candacraig and Balcairn, Balcairn, Oldmeldrum, Heifer, " Balcairn Lupin " (80,847).

Silver Medal *to the Breeder of the winner of above Prize*—given by the Shorthorn Society.

No. 80 Wallace, Falconer L., of Candacraig and Balcairn, Balcairn, Oldmeldrum.

CLASS 6. COW, born before 1st December 1924, in Milk.—PREMIUMS, £12, £8, £4, and £2.

1st No. 68 Wallace, Falconer L., of Candacraig and Balcairn, Balcairn, Oldmeldrum, " Balcairn Beauty's Gem " (68,810).
2nd No. 61 Crawford & Balcarres, The Earl of, K.T., Balcarres, Colinsburgh, Fife, " Balcarres Judith " (47,369).
3rd No. 67 Wallace, Falconer L., of Candacraig and Balcairn, Balcairn, Oldmeldrum, " Balcairn Nonpareil Bud " (68,839).
4th No. 59 Anderson, Robert, Fingask House, Oldmeldrum, " Golden Locks " (194).
V No. 62 Durno, James, Crichie, Inverurie, " Rosehaugh Clipper 3rd " (12,865).
H No. 66 Malcolm, William T., Whittinghame Mains, Haddington, " Princess Royal Beatrice " (27,301).
C No. 63 Durno, James, Rothiebrisbane, Fyvie, " Roan Bessie 4th " (5620).
C No. 58 Alexander & Addie, Newbiggin, Cambus, " Apple Blossom 11th " (32,668).
C No. 65 Kemp, Charles, Auchencrieve, Rothiemay, " Auchencrieve Rothes Queen " (26,323).

CLASS 7. COW, born on or after 1st December 1924. —PREMIUMS, £10, £5, £3, and £2.

1st No. 70 Durno, James & Leslie, Uppermill, Tarves, " Gainford Bellona 3rd " (74,452).
2nd No. 69 Crawford & Balcarres, The Earl of, K.T., Balcarres, Colinsburgh, Fife, " Lady Margery " (72,282).
3rd No. 71 Moray, The Earl of, Doune Lodge, Doune, " Doune Clipper 14th " (77,316).

CLASS 8. COW or HEIFER, born on or after 1st December 1925.—PREMIUMS, £10, £5, £3, and £2.

1st No. 80 Wallace, Falconer L., of Candacraig and Balcairn, Balcairn, Oldmeldrum, Heifer, " Balcairn Lupin " (80,847).
2nd No. 78 MacGillivray, Captain John, of Calrossie, Nigg, Ross-shire, Heifer, " Calrossie Flossy Belle " (88,098).
3rd No. 76 Houldsworth, Captain J. F. H., Coltness, Wishaw, Heifer, " Coltness Missie " (86,833).
4th No. 77 Law, Messrs, Mains of Sanquhar, Forres, Heifer, " Sanquhar Zoe 82nd " (87,639).
V No. 73 Alexander, Messrs, Newbigging, Rosewell, Heifer, " Rosewell Beauty " (81,983).
H No. 74 Cathcart, Lady, Cluny Castle, Sauchen, Heifer, " Cluny Beauty 5th " (83,591).
C No. 79 Snadden, W M'Nair, of Coldoch, Blair Drummond, Stirling, Heifer, " Blood Royal 8th " (91,448).

CLASS 9. HEIFER, born on or after 1st December 1926, and not later than 31st March 1927.—PREMIUMS, £10, £5, £3, and £2.

1st	No. 82	Cathcart, Lady, Cluny Castle, Sauchen, "Cluny Hilda Clipper."
2nd	No. 93	Wallace, Falconer L., of Candacraig and Balcairn, Balcairn, Oldmeldrum, "Balcairn Ella" (92,287).
3rd	No. 94	Wallace, Falconer L., of Candacraig and Balcairn, Balcairn, Oldmeldrum, "Balcairn Duenna."
4th	No. 86	Jones, Messrs, Dunmore Park, Larbert, "Larbert Nonpareil 9th."
V	No. 81	Cameron, James, Balnakyle, Munlochy, Ross-shire, "Balnakyle Symmetry 6th."
H	No. 84	Crawford and Balcarres, The Earl of, K.T., Balcarres, Colinsburgh, Fife, "Balcarres Ju."
C	No. 88	Moray, The Earl of, Doune Lodge, Doune, "Arngask Beauty 2nd."
C	No. 92	Snadden, W. M'Nair, of Coldoch, Blair Drummond, Stirling, "Dykedale Waterloo 3rd."
C	No. 87	M'William, R. S., Garguston, Muir of Ord, "Jenny Lind 33rd."

CLASS 10. HEIFER, born on or after 1st April 1927.—PREMIUMS, £10, £5, £3, and £2.

1st	No. 99	Fletcher, Captain A. M. Talbot, of Saltoun, Saltoun Hall, Pencaitland, East Lothian, "Saltoun Clara 3rd."
2nd	No. 96	Alexander & Addie, Newbiggin, Cambus, "Cambus Missie 2nd."
3rd	No. 97	Connon, Robert, Nether Coullie, Kemnay, "Orange Laura."
4th	No. 100	Kemp, Charles, Auchencrieve, Rothiemay, "Auchencrieve Lady Ramsden 2nd."
V	No. 98	Durno, James, Crichie, Inverurie, "Rosemary."

ABERDEEN-ANGUS.

PRESIDENT'S CHAMPION MEDAL for best Aberdeen-Angus Animal.

No. 149 Beddie, James, Banks, Strichen, "Gammer Iona" (73,458).
Reserve—No. 154 Kennedy, Colonel Norman, D.S.O., of Doonholm, Ayr, "Bettina of Doonholm" (78,885).

Fife and Kinross Perpetual Gold Challenge Cup, value £200, *for best Aberdeen-Angus Animal, "Extra Stock" being eligible to compete.* This Cup, along with an endowment of £400, was subscribed for by the Counties of Fife and Kinross in commemoration of the Society's first Show at Cupar-Fife in 1912.

No. 149 Beddie, James, Banks, Strichen, "Gammer Iona" (73,458).
Reserve—No. 154 Kennedy, Colonel Norman, D.S.O., of Doonholm, Ayr, "Bettina of Doonholm" (78,885).

Ballindalloch Challenge Cup, value £50, *for the best Bull of any age in Classes* 11, 12, *and* 13, given by the late Sir George MacPherson Grant, Bart.

No. 107 Cridlan, J. J., Maisemore Park, Gloucester, " Evader of Harviestoun " (52,626).

Breeder of the Winner of the Ballindalloch Challenge Cup—The Silver Medal.

No. 107 Kerr, J. E., of Harviestoun, Dollar.

Breeder of best Bull of any age in Classes 11, 12, *and* 13—The Silver Medal.

No. 107 Kerr, J. E., of Harviestoun, Dollar.

Champion Gold Medal *for best animal in the Breeding Classes, Breeding Animals shown as " Extra Stock " being eligible to compete*—given by the Aberdeen-Angus Cattle Society.

No. 149 Beddie, James, Banks, Strichen, " Gammer Iona " (73,458).

CLASS 11. BULL, born before 1st December 1925.—PREMIUMS, £15, £10, £5, and £3.

1st	No. 107	Cridlan, J. J., Maisemore Park, Gloucester, " Evader of Harviestoun " (52,626).
2nd	No. 116	Stewart, Sir R. K., K.B.E., Murdostoun Castle, Newmains, " Eryn of Doonholm " (59,161).
3rd	No. 106	Cran, George, Morlich, Glenkindie, " Ermine's Ettrick " (56,817).
4th	No. 110	Hendry, Robert, Netherton, Aberlour, " Priboc " (57,820).
V	No. 102	Abel, George, East Leylodge, Kintore, " Mulben Bulletin " (59,917).
H	No. 109	Findlay, Sir John R., Bart., K.B.E., of Aberlour, Aberlour, " Evident of Ballindalloch " (54,803).
C	No. 104	Campbell, A. D., Sibster, Halkirk, Caithness, " Elensio of Doonholm " (50,170).
C	No. 108	Duff, Lieut.-Col. G. B., D.S.O., Hatton Castle, Turriff, " Economer of Ballindalloch " (56,561).
C	No. 111	Houldsworth, James Hamilton, Castle Bank, Lanark, " Equator of Dallas " (59,084).

CLASS 12. BULL, born on or after 1st December 1925.—PREMIUMS, £15, £10, £5, and £3.

1st	No. 122	Kerr, J. E., of Harviestoun, Dollar, " Jipsey Eric " (62,088).
2nd	No. 123	Macbeth, W. Gilchrist, Dunira, Comrie, " Prince Benacus of Ballindalloch " (62,664).
3rd	No. 120	Duff, W. J., Thainston, Fettercairn, " Errabbie of the Burn " (61,547).
4th	No. 125	Murray, Thomas, & Sons, Laigh Grange, Maybole, " Escalon of Doonholm " (61,558).
V	No. 124	Murray, Captain G. D. Keith, M.C., Borgie Mains, Castletown, Caithness, " Erfurt of Harviestoun " (61,489).
H	No. 121	Gaul, J. & J., Whiterashes, Turriff, " Gaffer Lal " (61,786).
C	No. 126	Petrie, John M'G., Mains of Asleid, New Deer, " Earl of Buchan " (61,199).
C	No. 127	Russell, G. H., of The Burn, Edzell, " Plutus of East Town " (62,566).

CLASS 13. BULL, born on or after 1st December 1926.—PREMIUMS, £12, £8, £4, and £2.

1st No. 140 Wallace, Falconer L., of Candacraig and Balcairn, Strathdon, "Evolver of Harviestoun" (64,427).
2nd No. 138 Mackay, Charles, Balnastraid, Carr Bridge, Strathspey, "Black Mahdi of Bleaton" (63,433).
3rd No. 129 Beddie, James, Banks, Strichen, "Gaffer Goodwin" (64,505).
4th No. 136 Grant, Sir George MacPherson, Bart., Ballindalloch Castle, Ballindalloch, "Perfect Par of Ballintomb" (65,288).
V No. 135 Grant, Sir George MacPherson, Bart., Ballindalloch Castle, Ballindalloch, "Behemoth of Ballindalloch" (63,285).
H No. 131 Cumming, J. F., O.B.E., Kinermony Farm, Aberlour, "Gratuitous" (64,618).
C No. 134 Glenconner, Lord, The Glen, Innerleithen, "Enterprise of Glen" (64,137).
C No. 139 Marshall & Mitchell, Bleaton, Blairgowrie, "Glossary of Bleaton" (64,577).

Silver Cup, value £50, *for the best Female animal of the Aberdeen-Angus breed, "Extra Stock" being eligible to compete.* Presented by Mr Falconer L. Wallace of Candacraig and Balcairn, Strathdon.

No. 149 Beddie, James, Banks, Strichen, "Gammer Iona" (73,458).

Ballindalloch Challenge Cup, value £50, *for the best Cow of any age in Classes* 14, 15, *and* 16, given by the late Sir John MacPherson Grant, Bart.

No. 154 Kennedy, Colonel Norman, D.S.O., of Doonholm, Ayr, "Bettina of Doonholm" (78,885).

Breeder of the Winner of the Ballindalloch Challenge Cup—The Silver Medal.

No. 154 Kennedy, Colonel Norman, D.S.O., of Doonholm, Ayr.

CLASS 14. COW, in Milk, born before 1st December 1924.—PREMIUMS, £12, £8, £4, and £2.

1st No. 146 Kennedy, Colonel Norman, D.S.O., of Doonholm, Ayr, "Elmina of Doonholm" (76,615).
2nd No. 145 Grant, Sir George MacPherson, Bart., Ballindalloch Castle, Ballindalloch, "Roseleaf of Ballindalloch" (74,176).
3rd No. 144 Findlay, Sir John R., Bart., K.B.E., of Aberlour, Aberlour, "Epira" (71,634).
4th No. 147 Russell, G. H., of The Burn, Edzell, "Barataria" (77,293).
V No. 141 Booth, James C., Downiehills, Peterhead, "Jilt 5th of Duthil" (73,348).
H No. 143 Elliot, David P., Nisbethill, Duns, "Emerald of Nisbethill" (76,228).

EXTRA STOCK.

The following was awarded the Silver Medal:—

No. 149 Beddie, James, Banks, Strichen, "Gammer Iona" (73,458).

CLASS 15. COW, in Milk, born on or after 1st December 1924.—PREMIUMS, £12, £8, £4, and £2.

1st No. 154 Kennedy, Colonel Norman, D.S.O., of Doonholm, Ayr, "Bettina of Doonholm" (78,885).
2nd No. 152 Cumming, J. F., O.B.E., Kinermony Farm, Aberlour, "Janette of Kinermony" (78,323).

3rd	No. 159	Wallace, Falconer L., of Candacraig and Balcairn, Strathdon, "Phyllis of Candacraig" (80,007).
4th	No. 155	Lilburn, Lieut.-Col. W., of Coull, Aboyne, "Gentianella of Abergeldie" (77,826).
V	No. 151	Beddie, James, Banks, Strichen, "Gammer Kinah" (77,981).
H	No. 150	Beddie, James, Banks, Strichen, "Gammer Karmen" (77,974).
C	No. 158	Russell, G. H., of The Burn, Edzell, "Gratziella of the Burn" (79,688).

CLASS 16. COW or HEIFER, born on or after 1st December 1925.—PREMIUMS, £10, £5, £3, and £2.

1st	No. 162	Grant, Sir George MacPherson, Bart., Ballindalloch Castle, Ballindalloch, Heifer, "Joan of Ballindalloch" (81,146).
2nd	No. 167	Wallace, Falconer L., of Candacraig and Balcairn, Strathdon, Heifer, "Evergreen of Candacraig" (82,644).
3rd	No. 161	Cumming, J. F., O.B.E., Kinermony Farm, Aberlour, Heifer, "Juneberry of Kinermony" (80,784).
4th	No. 164	Kennedy, Colonel Norman, D.S.O., of Doonholm, Ayr, Heifer, "Madeira of Doonholm" (81,393).
V	No. 163	Grant, Sir George MacPherson, Bart., Ballindalloch Castle, Ballindalloch, Heifer, "Evolerica of Ballindalloch" (81,141).
H	No. 165	Kerr, J. E., of Harviestoun, Dollar, Heifer, "Judy Erica" (81,416).

CLASS 17. HEIFER, born on or after 1st December 1926, and before 1st March 1927.—PREMIUMS, £10, £5, £3, and £2.

1st	No. 170	Findlay, Sir John R., Bart., K.B.E., of Aberlour, Aberlour, "Euxida 2nd" (83,706).
2nd	No. 174	Kerr, J. E., of Harviestoun, Dollar, "Jimpy Erica" (84,225).
3rd	No. 173	Kennedy, Colonel Norman, D.S.O., of Doonholm, Ayr, "Bryony of Doonholm" (84,198).
4th	No. 169	Elliot, David P., Nisbethill, Duns, "Heatherberry of Nisbethill" (83,637).
V	No. 178	Robertson, Charles G., Tullochgribban, Grantown-on-Spey, "Black Lady of Tullochgribban" (85,125).
H	No. 181	Wallace, Falconer L., of Candacraig and Balcairn, Strathdon, "Geraldine of Candacraig" (85,620).
C	No. 175	Marshall & Mitchell, Bleaton, Blairgowrie, "Essayette of Bleaton" (84,631).

CLASS 18. HEIFER, born on or after 1st March 1927.—PREMIUMS, £10, £5, £3, and £2.

1st	No. 187	Honeyman, R. Wemyss, Derculich, Strathtay, "Black Lula of Skillymarno" (83,957).
2nd	No. 192	Robertson, Peter D., Castlecraig, Nigg, Ross-shire, "Joan 8th of Castlecraig" (85,156).
3rd	No. 188	Macbeth, W. Gilchrist, Dunira, Comrie, "Bonnie Maid of Dunira" (84,375).
4th	No. 184	Brodie, Mrs, Lethen, Nairn, "Edina of Lethen" (83,228).
V	No. 191	Robertson, Charles G., Tullochgribban, Grantown-on-Spey, "Black Ida of Tullochgribban" (85,124).
H	No. 190	Murray, Thomas, & Sons, Laigh Grange, Maybole, "Golden Eagle of Laigh Grange" (84,772).
C	No. 185	Duff, Lieut.-Col. G. B., D.S.O., Hatton Castle, Turriff, "Daffodil Duchess 67th" (83,545).

GALLOWAY.

PRESIDENT'S CHAMPION MEDAL for best Galloway.

No. 204 Paterson, R. Jardine, Balgray, Lockerbie, " Joan 6th of Scroggiehall " (28,801).

Reserve—No. 206 Buchanan-Jardine, Sir John William, of Castlemilk, Bart., Castlemilk, Lockerbie, Heifer, " Ivy of Castlemilk " (30,918).

Dr Gillespie Memorial Challenge Trophy, value £50, *for best Galloway Animal registered in the Galloway Cattle Society's Herd-Book, entered in any of the Breeding Classes, Breeding Animals shown as " Extra Stock " being eligible to compete*—given by the Galloway Cattle Society of Great Britain and Ireland.

No. 204 Paterson, R. Jardine, Balgray, Lockerbie, " Joan 6th of Scroggiehall " (28,801).

Breeder of best Bull of any age in Classes 19, 20, *and* 21—The Silver Medal.

No. 199 Black, John, Blair, Maybole.

CLASS 19. BULL, born before 1st December 1925.—PREMIUMS, £15, £10, £5, and £3.

1st No. 194 Wilson, James, & Son, Tundergarth Mains, Lockerbie, " Mormon's Heir " (15,033).

2nd No. 193 Paterson, R. Jardine, Balgray, Lockerbie, " Mark of Allergarth " (15,932).

CLASS 20. BULL, born on or after 1st December 1925.—PREMIUMS, £15, £10, £5, and £3.

1st No. 197 Little, D. & J., Whitehill, Corrie, Lockerbie, " Juryman " (16,269).

2nd No. 198 Malcolm, George, Dalwyne, Barr, Ayrshire, " Something Good " (16,349).

3rd No. 196 Lightbody, Thomas, Beechwood, Gretna, " Grand Step " (16,187).

4th No. 195 Jeffrey, C., Kirtleton, Waterbeck, Lockerbie, " Copyright of Tundergarth Mains " (16,360).

CLASS 21. BULL, born on or after 1st December 1926.—PREMIUMS, £12, £8, £4, and £2.

1st No. 199 Anderson, J. Scott, Tullichewan, Alexandria, " Excelsior of Blair " (16,401).

2nd No. 201 Gourlay, Francis N. M., Kirkland, Tynron, Thornhill, Dumfriesshire, " Andra of Kirkland " (16,530).

CLASS 22. COW, of any age, in Milk.—PREMIUMS, £12, £8, £4, and £2.

1st No. 204 Paterson, R. Jardine, Balgray, Lockerbie, " Joan 6th of Scroggiehall " (28,801).

2nd No. 203 Buchanan-Jardine, Sir John William, of Castlemilk, Bart., Castlemilk, Lockerbie, " Grange Lizzie VI." (27,914).

3rd No. 202 Buchanan-Jardine, Sir John William, of Castlemilk, Bart., Castlemilk, Lockerbie, " Lady Alexa of Castlemilk " (27,617).

CLASS 23. COW or HEIFER, born on or after 1st December 1925.
—PREMIUMS, £10, £5, £3, and £2.

1st No. 206 Buchanan-Jardine, Sir John William, of Castlemilk, Bart., Castlemilk, Lockerbie, Heifer, "Ivy of Castlemilk" (30,918).
2nd No. 210 Paterson, R. Jardine, Balgray, Lockerbie, Heifer, "Joan 2nd of Balgray" (30,935).
3rd No. 208 Donaldson, W. B., Auchineden, Blanefield, Heifer, "Beauty of Auchineden" (30,798).
4th No. 207 Buchanan-Jardine, Sir John William, of Castlemilk, Bart., Castlemilk, Lockerbie, Heifer, "Lady Fashion of Castlemilk" (30,924).
V No. 209 Gourlay, Francis N. M., Kirkland, Tynron, Thornhill, Dumfriesshire, Heifer, "Craigneston Fashion" (30,854).
H No. 211 Paterson, R. Jardine, Balgray, Lockerbie, Heifer, "Lady of Balgray" (30,936).

CLASS 24. HEIFER, born on or after 1st December 1926.—
PREMIUMS, £10, £5, £3, and £2.

1st No. 226 Wilson, James, & Son, Tundergarth Mains, Lockerbie, "Lady Alice 11th of Tundergarth Mains" (31,858).
2nd No. 225 Wilson, James, & Son, Tundergarth Mains, Lockerbie, "Jessie 6th of Tundergarth Mains" (31,854).
3rd No. 222 Jeffrey, C., Kirtleton, Waterbeck, Lockerbie, "Kirtleton Cakewalk" (31,541).
4th No. 216 Buchanan-Jardine, Sir John William, of Castlemilk, Bart., Castlemilk, Lockerbie, "Elsie of Castlemilk" (31,519).
V No. 221 Gourlay, Francis N. M., Kirkland, Tynron, Thornhill, Dumfriesshire, "Favourite of Kirkland" (31,435).
H No. 223 Paterson, R. Jardine, Balgray, Lockerbie, "Joan 3rd of Balgray" (31,533).
C No. 224 Paterson, R. Jardine, Balgray, Lockerbie, "Doris 2nd of Balgray" (31,534).

BELTED GALLOWAY.

PRESIDENT'S CHAMPION MEDAL for best Belted Galloway Animal.

No. 227 Bute, The Marquis of, K.T., Craigeach, Kirkcowan, "Mochrum Royal Record of Craigeach" (61 B).
Reserve—No. 258 Cayzer, Lieut.-Com. Sir A. B. T., Bart., R.N., Gartmore House, Gartmore, Perthshire, "Gartmore Helen I." (1322 B).

Knockbrex Challenge Cup, value £50, *for the best Belted Galloway Animal, "Extra Stock" being eligible to compete.* This Cup was presented by Mrs Brown, Kirkbrex, Glasgow, for the best Belted Galloway animal registered in the Dun and Belted Galloway Cattle Breeders' Association Herd-Book, entered in any of the breeding classes at the Show at which it may be competed for.

No. 227 Bute, The Marquis of, K.T., Craigeach, Kirkcowan, "Mochrum Royal Record of Craigeach" (61 B).

CLASS 25. BULL, born before 1st December 1926.—
PREMIUMS, £10, £5, £3, and £2.

1st	No. 227	Bute, The Marquis of, K.T., Craigeach, Kirkcowan, "Mochrum Royal Record of Craigeach" (61 B).
2nd	No. 229	Graham, Andrew, Barbey, Borgue, "Mark Defiance" (681 B).
3rd	No. 228	Cayzer, Lieut.-Com. Sir A. B. T., Bart., R.N., Gartmore House, Gartmore, Perthshire, "Gartmore Admiral II." (85 B).

CLASS 26. BULL, born on or after 1st December 1926.—
PREMIUMS, £10, £5, £3, and £2.

1st	No. 235	Cayzer, Lieut.-Com. Sir A. B. T., Bart., R.N., Gartmore House, Gartmore, Perthshire, "Gartmore Robin" (707 B).
2nd	No. 236	Graham, Andrew, Barbey, Borgue, "Mark Haig."
3rd	No. 234	Bute, The Marquis of, K.T., Craigeach, Kirkcowan, "Mochrum Sturdee of Craigeach" (773 B).
4th	No. 238	Newbigging, Dr T. Duncan, Kirkton of Crawford, Abington, Lanarkshire, "Kirkton Atlas the Second."
V	No. 232	Brown, J. Douglas, Knockbrex, Kirkcudbright, "Knockbrex Earl Marshal" (687 B).
H	No. 233	Brown, J. Douglas, Knockbrex, Kirkcudbright, "Knockbrex Esquire" (695 B).

CLASS 27. COW or HEIFER, born before 1st December 1925, in Milk or in Calf; if in Calf, to calve on or before 1st December of the year of the Show.—PREMIUMS, £10, £5, £3, and £2.

1st	No. 240	Brown, J. Douglas, Knockbrex, Kirkcudbright, Cow, "Knockbrex Claire" (762 B).
2nd	No. 241	Cayzer, Lieut-Com. Sir A. B. T., Bart., R.N., Gartmore House, Gartmore, Perthshire, Cow, "Gartmore Brenda I." (580 B).
3rd	No. 239	Brown, J. Douglas, Knockbrex, Kirkcudbright, Cow, "Boreland Priceless Pearl" (132 B).
4th	No. 242	Graham, Andrew, Barbey, Borgue, Cow, "Mark Biddy 4th" (369 B).
V	No. 244	Newbigging, Dr T. Duncan, Kirkton of Crawford, Abington, Lanarkshire, Cow, "Newton Pearl" (734 B).

CLASS 28. HEIFER, born on or after 1st December 1925.—
PREMIUMS, £10, £5, £3, and £2.

1st	No. 246	Cayzer, Lieut.-Com. Sir A. B. T., Bart., R.N., Gartmore House, Gartmore, Perthshire, "Gartmore Mary II." (1038 B).
2nd	No. 245	Brown, J. Douglas, Knockbrex, Kirkcudbright, "Knockbrex Diamond" (970 B).
3rd	No. 248	Cross, Sir William, Bart., of Scatwell, Muir of Ord, "Scatwell Cherry" (1106 B).
4th	No. 249	Graham, Andrew, Barbey, Borgue, "Mark Bet."
V	No. 250	Newbigging, Dr T. Duncan, Kirkton of Crawford, Abington, Lanarkshire, "Newton Maud" (1022 B).
H	No. 247	Cross, Sir William, Bart., of Scatwell, Muir of Ord, "Scatwell Clematis" (1114 B).

CLASS 29. HEIFER, born on or after 1st December 1926.—PREMIUMS, £10, £5, £3, and £2.

1st	No. 258	Cayzer, Lieut.-Com. Sir A. B. T., Bart., R.N., Gartmore House, Gartmore, Perthshire, "Gartmore Helen I." (1322 B).
2nd	No. 255	Bute, The Marquis of, K.T., Craigeach, Kirkcowan, "Mochrum Galloway Lass of Craigeach" (1426 B).
3rd	No. 254	Brown, J. Douglas, Knockbrex, Kirkcudbright, "Knockbrex Echo" (1280 B).
4th	No. 256	Bute, The Marquis of, K.T., Craigeach, Kirkcowan, "Mochrum Confidence of Craigeach" (1420 B).
V	No. 252	Brown, J. Douglas, Knockbrex, Kirkcudbright, "Knockbrex Eve" (1296 B).
H	No. 257	Cayzer, Lieut.-Com. Sir A. B. T., Bart., R.N., Gartmore House, Gartmore, Perthshire, "Gartmore Florence II." (1318 B).
C	No. 259	Cross, Sir William, Bart., of Scatwell, Muir of Ord, "Scatwell Hilda" (1462 B).
C	No. 260	Cross, Sir William, Bart., of Scatwell, Muir of Ord, "Scatwell Hetty" (1460 B (D)).

HIGHLAND.

PRESIDENT'S CHAMPION MEDAL for best Highland Animal.

No. 273 Southesk, The Earl of, Kinnaird Castle, Brechin, "Corrina of Southesk" (9824).

Reserve—No. 268 Maze, Mrs, of Achnacloich, Connel, Argyll, "Culnadalloch II. of Achnacloich."

Perpetual Victory Challenge Cup, approximate value 50 Guineas, *for the best animal in the Male Classes, "Extra Stock" being eligible to compete*—given by the Highland Cattle Society of Scotland.

No. 268 Maze, Mrs, of Achnacloich, Connel, Argyll, "Culnadalloch II. of Achnacloich."

Breeder of best Bull of any age in Classes 30, 31, *and* 32—The Silver Medal.

No. 268 Maze, Mrs, of Achnacloich, Connel, Argyll.

CLASS 30. BULL, born before 1926.—PREMIUMS, £15, £10, £5, and £3.

1st	No. 262	Maitland, Brig.-General James Dalgleish Heriot, C.M.G., D.S.O., of Errol, Errol Park, Errol, Perthshire, "Sir Charles."
2nd	No. 261	Invernairn, Lord, of Strathnairn, Flichity, Inverness, "Laoch of Flichity."

EXTRA STOCK.

The following was awarded the Silver Medal:—

No. 263 Home, The Earl of, Douglas Castle, Douglas, Lanarkshire, "An-t-Uramach of Errol."

CLASS 31. BULL, born in 1926.—PREMIUMS, £15, £10, £5, and £3.

1st No. 264 Southesk, The Earl of, Kinnaird Castle, Brechin, " Ossian IV. of Southesk."

CLASS 32. BULL, born in 1927.—PREMIUMS, £12, £8, £4, and £2.

1st No. 268 Maze, Mrs, of Achnacloich, Connel, Argyll, " Culnadalloch II. of Achnacloich."
2nd No. 269 Southesk, The Earl of, Kinnaird Castle, Brechin, " Calum Buidhe of Southesk."
3rd No. 270 Southesk, The Earl of, Kinnaird Castle, Brechin, " Silvio II. of Southesk."
4th No. 265 Maitland, Brig.-General James Dalgleish Heriot, C.M.G., D.S.O., of Errol, Errol Park, Errol, Perthshire, " Morven Tormaid of Errol."
V No. 266 Maze, Mrs, of Achnacloich, Connel, Argyll, " Prionnsa Ruadh of Achnacloich."

Perpetual Victory Challenge Cup, approximate value 35 Guineas, *for the best animal in the Female Classes, " Extra Stock " being eligible to compete*—given by the Highland Cattle Society of Scotland.

No. 273 Southesk, The Earl of, Kinnaird Castle, Brechin, " Corrina of Southesk " (9824).

CLASS 33. COW, of any age, in Milk.—PREMIUMS, £12, £8, £4, and £2.

1st No. 273 Southesk, The Earl of, Kinnaird Castle, Brechin, " Corrina of Southesk " (9824).
2nd No. 272 Maitland, Brig.-General James Dalgleish Heriot, C.M.G., D.S.O., of Errol, Errol Park, Errol, Perthshire, " Luna of Errol."
3rd No. 271 Maitland, Brig.-General James Dalgleish Heriot, C.M.G., D.S.O., of Errol, Errol Park, Errol, Perthshire, " Fuinary Queen II. of Errol."

CLASS 34. COW or HEIFER, born in 1925.—PREMIUMS, £10, £5, £3, and £2.

1st No. 274 Southesk, The Earl of, Kinnaird Castle, Brechin, Heifer, " Sidonia of Southesk " (9827).
2nd No. 275 Southesk, The Earl of, Kinnaird Castle, Brechin, Heifer, " Lady Ruth II." (9828).

CLASS 35. HEIFER, born in 1926.—PREMIUMS, £10, £5, £3, and £2.

1st No. 277 Southesk, The Earl of, Kinnaird Castle, Brechin, " Caroline II. of Southesk."
2nd No. 276 Home, The Earl of, Douglas Castle, Douglas, Lanarkshire, " Dossan Ruadh " (9721).
3rd No. 278 Southesk, The Earl of, Kinnaird Castle, Brechin, " Caroline of Southesk."

LASS 36. HEIFER, born in 1927.—PREMIUMS, £10, £5, £3, and £2.

1st No. 281 Maitland, Brig.-General James Dalgleish Heriot, C.M.G., D.S.O., of Errol, Errol Park, Errol, Perthshire, " Lydia II. of Errol."

2nd No. 283 Southesk, The Earl of, Kinnaird Castle, Brechin, " Maura of Southesk."

3rd No. 282 Southesk, The Earl of, Kinnaird Castle, Brechin, " Sidonia II. of Southesk."

4th No. 280 Maitland, Brig.-General James Dalgleish Heriot, C.M.G., D.S.O., of Errol, Errol Park, Errol, Perthshire, " Fuinary Princess II. of Errol."

V No. 279 Home, The Earl of, Douglas Castle, Douglas, Lanarkshire, " Morag Riabhach I. of Douglas."

AYRSHIRE.

CONDITIONS.

1. To be eligible for competition in the Ayrshire Section cows must have an authenticated milk yield, and younger females (including cows which have not completed their first lactation) and bulls an authenticated milking pedigree, of a definite minimum amount.
2. The minimum amount referred to shall be as follows, calculated on the basis of a period between calvings of 52 weeks, and 3.8 per cent of butter fat :—
   (*a*) Cows which have completed two or more lactations—700 gallons.
   (*b*) Cows which have completed only one lactation—600 gallons.
   (*c*) Younger females and bulls—an authenticated milking pedigree for dam and dam of sire on a similar basis.
3. In the case of cows with two or more lactations the record lodged may be that for any year the Exhibitor may select.

PRESIDENT'S CHAMPION MEDAL for best Ayrshire.

No. 312 Houldsworth, Colonel W. T. R., Threave, Kirkmichael, Maybole, " Dunlop Radiance " (25,732).

Reserve—No. 291 Howie, James, Hillhouse, Kilmarnock, " Howie's Beauty 6th " (88,354).

Cowhill Champion Cup, approximate value £30, *for best animal of the Ayrshire breed, entered with a number in the Herd-Book.* Presented by Major Henry Keswick, Cowhill Tower, Dumfries, to the Ayrshire Cattle Herd-Book Society, to be competed for annually at the Shows of the Highland and Agricultural Society of Scotland.

No. 291 Howie, James, Hillhouse, Kilmarnock, " Howie's Beauty 6th " (88,354).

Special Prize of £10 *for the best Female Animal of the Ayrshire breed entered with a number in the Ayrshire Cattle Herd-Book not later than 1st June* 1928—given by the Ayrshire Cattle Herd-Book Society.

No. 291 Howie, James, Hillhouse, Kilmarnock, " Howie's Beauty 6th " (88,354).

CLASS 37. COW in Milk, born before 1925.—Premiums, £12, £8, and £4.

1st No. 285 Howie, James, Jun., Eglington Mains, Irvine, " Monkland Maggie 6th " (88,402).
2nd No. 284 Barr, Thomas, Hobsland, Monkton, " Hobsland Janet 2nd " (95,026).

CLASS 38. COW in Milk, born on or after 1st January 1925.—Premiums, £10, £7, and £3.

1st No. 288 Leake, Commander E. W. B., Hollybush House, Hollybush, Ayrshire, " Dalgig Ruby " (4823).
2nd No. 296 Cochrane, John, Byreholm, Thornhill, Dumfriesshire, " Byreholm Fern " (1858).
3rd No. 289 Stewart, Sir Hugh Shaw, Bart., C.B., of Ardgowan, Inverkip, " Ardgowan Susanna 2nd " (3602).
V No. 287 Corbett, The Hon. T. G. P., Rowallan, Kilmarnock, " Rowallan Kate Mendel 3rd " (8578).
H No. 290 Stewart, Sir Hugh Shaw, Bart., C.B., of Ardgowan, Inverkip, " Ardgowan Snowdrop " (9476).

CLASS 39. COW of any age, in Calf, and due to calve before 1st December of the year of the Show.—Premiums, £10, £7, and £3.

1st No. 291 Howie, James, Hillhouse, Kilmarnock, " Howie's Beauty 6th " (88,354).
2nd No. 294 Rottenburg, F. A., Lochlane, Crieff, " Meikle Knox Winnie 3rd " (98,164).
3rd No. 292 Howie, James, Jun., Eglinton Mains, Irvine, " Willoxton Joan 2nd " (61,335).

CLASS 40. HEIFER, born in or after 1925, in Calf, and due to calve before 1st December of the year of the Show.—Premiums, £10, £7, and £3.

1st No. 295 Clark, John, Dunrod Farm, Inverkip, " Dunrod Honeysuckle " (9416).
2nd No. 297 Corbett, Hon. T. G. P., Rowallan, Kilmarnock, " Rowallan Tilda 5th " (8582).

CLASS 41. HEIFER, born in 1926.—Premiums, £10, £5, and £3.

1st No. 300 Barr, Thomas, Hobsland, Monkton, " Willoxton Madge " (8817).
2nd No. 302 Stewart, Sir Hugh Shaw, Bart., C.B., of Ardgowan, Inverkip, " Ardgowan Sally " (9473).
3rd No. 299 Airlie Estates Company, Home Farm, Cortachy Castle, Kirriemuir, " Cortachy Tibby 3rd " (10,036).
V No. 301 Cowhill Estate Company, Limited, Holywood, Dumfries, " Cowhill Eleanor " (8768).

CLASS 42. HEIFER, born in 1927.—PREMIUMS, £8, £5, and £3.

1st No. 305 Cowhill Estate Company, Limited, Holywood, Dumfries, "Cowhill Eleanor 2nd" (12,389).
2nd No. 306 Houldsworth, Colonel W. T. R., Threave, Kirkmichael, Maybole, "Threave Patience 4th" (14,471).
3rd No. 303 Barr, Thomas, Hobsland, Monkton, "Hobsland Lily 6th" (10,751).
V No. 307 Houldsworth, Colonel W. T. R., Threave, Kirkmichael, Maybole, "Threave Flower Girl" (14,463).
H No. 304 Barr, Thomas, Hobsland, Monkton, "Hobsland Snowflight" (10,764).
C No. 308 Stewart, Sir Hugh Shaw, Bart., C.B., of Ardgowan, Inverkip, "Dunlop Brill" (10,796).

Special Prize of £10 *for the best Male Animal of the Ayrshire breed entered with a number in the Ayrshire Cattle Herd-Book not later than* 1*st June* 1928—given by the Ayrshire Cattle Herd-Book Society.

No. 312 Houldsworth, Colonel W. T. R., Threave, Kirkmichael, Maybole, "Dunlop Radiance" (25,732).

Breeder of best Bull of any age in Classes 43, 44, *and* 45—The Silver Medal.

No. 316 Thomas Barr, Hobsland, Monkton.

CLASS 43. BULL, born before 1926.—PREMIUMS, £12, £8, and £4.

1st No. 309 Barr, Thomas, Hobsland, Monkton, "Hobsland Finalist" (25,219).
2nd No. 310 Rottenburg, F. A., Lochlane, Crieff, "Howie's X-Ray" (25,362).

EXTRA STOCK.

The following was awarded the Silver Medal:—

No. 312 Houldsworth, Colonel W. T. R., Threave, Kirkmichael, Maybole, "Dunlop Radiance" (25,732).

CLASS 44. BULL, born in 1926.—PREMIUMS, £10, £7, and £3.

1st No. 316 Montrose, The Duke of, C.B., C.V.O., Buchanan Castle, Drymen, "Hobsland Gallant Boy" (26,169).
2nd No. 314 Howie, James, Hillhouse, Kilmarnock, "Syke Stamp" (26,492).
3rd No. 313 Cochrane, Lieut.-Col. Lord, of Cults, Crawford Priory, Springfield, Fife, "Ardgowan Stability" (26,458).

CLASS 45. BULL, born in 1927.—PREMIUMS, £8, £5, and £3.

1st No. 324 Rottenburg, F. A., Lochlane, Crieff, "Netherhall Up-to-Date" (27,366).
2nd No. 323 Howie, James, Jun., Eglinton Mains, Irvine, "Carnell Rob Roy" (27,417).
3rd No. 321 Howie, James, Hillhouse, Kilmarnock, "Howie's Nonsuch" (27,469).
V No. 322 Howie, James, Hillhouse, Kilmarnock, "Netherhall Self-Starter" (27,364).
H No. 320 Cowhill Estate Company, Limited, Holywood, Dumfries, "Auchenbrain Royal Captain" (27,542).
C No. 319 Airlie Estates Company, Home Farm, Cortachy Castle, Kirriemuir, "Lessnessock Lord of the Isles."

BRITISH FRIESIAN.

PRESIDENT'S CHAMPION MEDAL for best British Friesian Animal.

No. 342 Kilpatrick, James, Craigie Mains, Kilmarnock, "Craigiemains Beauty" (P.I.) (103,226).
Reserve—No. 364 Eadie, Mrs D. S. K., The Hazelbank, Dunlop, "Douneside Pel Pilot 2nd" (28,371).

The MacRobert Champion Silver Bell, value 50 Guineas, *for the best animal in the British Friesian Classes, registered in or eligible for entry in the British Friesian Cattle Herd-Book, "Extra Stock" being eligible to compete.* Presented by Lady Rachel Workman MacRobert, Douneside, Tarland.

No. 342 Kilpatrick, James, Craigie Mains, Kilmarnock, "Craigiemains Beauty" (P.I.) (103,226).

Champion Prize of £5 given by the British Friesian Cattle Society *for the best Female exhibited.*

No. 342 Kilpatrick, James, Craigie Mains, Kilmarnock, "Craigiemains Beauty" (P.I.) (103,226).

CLASS 46. COW in Milk, born in or before 1924.—PREMIUMS, £12, £8, and £4.

1st No. 328 Sinclair, David, Loirston, Nigg, Aberdeen, "Loirston Sweet Briat 3rd" (63,886).
2nd No. 327 Sinclair, David, Loirston, Nigg, Aberdeen, "Loirston May Queen" (54,784).

CLASS 47. COW in Calf, and not in Milk, born in or before 1924.—PREMIUMS, £10, £5, and £3.

1st No. 332 Glentanar, Lord, Glen Tanar, Aboyne, "Tyneside Swell Again's Swell" (88,266).
2nd No. 331 Bute, The Marquis of, K.T., Mount Stuart, Rothesay, "Bute Vanessa" (59,668).
3rd No. 326 MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, Aberdeenshire, "Findlay Lala 4th" (61,470).
V No. 333 MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, Aberdeenshire, "Douneside Longa 2nd" (81,184).
H No. 334 MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, Aberdeenshire, "Douneside Kathleen" (81,182).
C No. 335 Sinclair, David, Loirston, Nigg, Aberdeen, "Loirston Pansy 3rd" (84,480).

CLASS 48. COW in Milk, born in 1925 or 1926.— PREMIUMS, £10, £5, and £3.

1st No. 337 MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, Aberdeenshire, " Douneside Floss " (92,522).

CLASS 49. HEIFER, born in 1926.—PREMIUMS, £10, £5, and £3.

1st No. 342 Kilpatrick, James, Craigie Mains, Kilmarnock, " Craigie mains Beauty " (P.I.) (103,226).

2nd No. 344 MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, Aberdeenshire, " Douneside Hatsumer 4th " (P.I.) (104,000).

3rd No. 341 Glentanar, Lord, Glen Tanar, Aboyne, " Tyneside Joukje " (P.I.) (111,114).

V No. 343 MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, Aberdeenshire, " Douneside Pel Sloe 2nd " (104,012).

H No. 345 Ross, Errington, Castleheather, Inverness, " Castleheather Bunty " (102,436).

C No. 346 Sinclair, William, Loirston, Nigg, Aberdeen, " Kirkhill Jeltje 6th " (P.I.) (106,600).

C No. 347 Stirling, John, Fairburn, Muir of Ord, " Fairburn Amalthea " (104,414).

CLASS 50. HEIFER, born in 1927, before 1st July.— PREMIUMS, £10, £5, and £3.

1st No. 350 MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, " Douneside Maris 2nd."

2nd No. 349 Kilpatrick, James, Craigie Mains, Kilmarnock, " Craigiemains Beauty 2nd."

3rd No. 351 MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, Aberdeenshire, " Douneside Becula 4th."

V No. 352 Pathhead & Sinclairtown Reform Co-operative Society, Limited, 102 Commercial Street, Kirkcaldy, " Abden Lady St Audrey."

CLASS 51. HEIFER, born in 1927, on or after 1st July.— PREMIUMS, £10, £5, and £3.

1st No. 359 MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, Aberdeenshire, " Douneside Maripose."

2nd No. 358 Glentanar, Lord, Glen Tanar, Aboyne, " Drumry Butterfly."

3rd No. 360 MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, Aberdeenshire, " Douneside Madge 2nd."

V No. 357 Bute, The Marquis of, K.T., Mount Stuart, Rothesay, " Bute Mimosa."

H No. 362 Stirling, John, Fairburn, Muir of Ord, " Fairburn Ausonia " (115,816).

C No. 361 Pathhead & Sinclairtown Reform Co-operative Society, Limited, 102 Commercial Street, Kirkcaldy, " Abden Gracie."

Champion Prize of £5, given by the British Friesian Cattle Society *for the best Male exhibited.*

No. 364 Eadie, Mrs D. S. K., The Hazelbank, Dunlop, " Douneside Pel Pilot 2nd " (28,371).

Breeder of best Bull of any age in Classes 52, 53, *and* 54—The Silver Medal.

No. 364 MacRobert, Trustees of Sir Alasdair W., Bart., Douneside, Tarland, Aberdeenshire.

CLASS 52. BULL, born in or before 1925.—PREMIUMS, £12, £8, and £4.

1st	No. 364	Eadie, Mrs D. S. K., The Hazelbank, Dunlop, " Douneside Pel Pilot 2nd " (28,371).
2nd	No. 366	Prentice, John W., Craigrie Farm, Clackmannan, " Commieston Dorcas " (28,169).
3rd	No. 368	Stewart, George, & Son, Drum Farm, Bo'ness, " Douneside Masterpiece " (19,835).
V	No. 369	Stirling, John, Fairburn, Muir of Ord, " Findlay Cesar " (25,687).
H	No. 363	Collie, George, Hillbrae, Inverurie, " Findlay Boultree " (16,911).

EXTRA STOCK.

The following was awarded the Silver Medal :—

No. 367 Ross, Errington, Castleheather, Inverness, " Douneside Ideal " (25,509).

CLASS 53. BULL, born in 1926.—PREMIUMS, £10, £5, and £3.

1st	No. 370	MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, Aberdeenshire, " Douneside Pel Klaas " (P.I.) (30,901).
2nd	No. 371	Pathhead & Sinclairtown Reform Co-operative Society, Limited, 102 Commercial Street, Kirkcaldy, " Douneside Albert 2nd " (30,881).

CLASS 54. BULL, born in 1927.—PREMIUMS, £10, £5, and £3.

1st	No. 372	Glentanar, Lord, Glen Tanar, Aboyne, " Glentanar Barlander " (P.I.).
2nd	No. 375	MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, Aberdeenshire, " Douneside Hatsumerschaap 4th " (P.I.).
3rd	No. 374	MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farm, Tarland, Aberdeenshire, " Douneside Hatsumerschaap 2nd " (P.I.).

RED POLL.

PRESIDENT'S CHAMPION MEDAL for best Red Poll Animal.

No. 398 Leggat, Hugh, Arthurlie Park, Barrhead, "Holmwood Duke" (12,333).

Reserve—No. 379 Hambling, Sir Herbert, Bart., D.L., J.P., Rookery Park, Yoxford, Suffolk, "Royal Mavis" (30,347).

Kinmount Challenge Cup, value about £50, *for the best Female Animal in the Red Poll Classes registered in the Red Poll Cattle Society's Herd-Book, "Extra Stock" being eligible to compete.* This Cup was presented to the Society by Lieut.-Colonel Charles Brook of Kinmount, Annan.

No. 379 Hambling, Sir Herbert, Bart., D.L., J.P., Rookery Park, Yoxford, Suffolk, "Royal Mavis" (30,347).

CLASS 55. COW in Milk or in Calf, born before 1926.—PREMIUMS, £10, £5, and £3.

1st No. 379 Hambling, Sir Herbert, Bart., D.L., J.P., Rookery Park, Yoxford, Suffolk, "Royal Mavis" (30,347).
2nd No. 378 Crichton Royal Institution, Crichton Royal Farm, Dumfries, "Necton Sister" (29,127).
3rd No. 376 Barclay-Harvey, Charles Malcolm, M.P., Dinnet, Aberdeenshire, "Kinmount Fashion 1st" (30,081).
V No. 377 Barclay-Harvey, Charles Malcolm, M.P., Dinnet, Aberdeenshire, "Basildon Rosemary 3rd" (35,223).
H No. 384 Robertson, William Berry, Colton, Dunfermline, "Kinmount Sweet Chestnut" (28,974).

CLASS 56. HEIFER, born in 1926.—PREMIUMS, £10, £5, and £3.

1st No. 386 Hambling, Sir Herbert, Bart., D.L., J.P., Rookery Park, Yoxford, Suffolk, "Yoxford Beryl" (38,714).
2nd No. 388 Montrose, The Duchess of, Brodick Castle, Brodick, Arran, "Isle of Arran Red Rose" (37,714).
3rd No. 387 Leggat, Hugh, Arthurlie Park, Barrhead, "Arthurlie Fancy" (36,898).

CLASS 57. HEIFER, born in 1927.—PREMIUMS, £10, £5, and £3.

1st No. 393 Montrose, The Duchess of, Brodick Castle, Brodick, Arran, "Isle of Arran Julep."
2nd No. 392 Leggat, Hugh, Arthurlie Park, Barrhead, "Arthurlie Pride."
3rd No. 390 Crichton Royal Institution, Crichton Royal Farm, Dumfries, "Crichton Royal Sister."

CLASS 58. BULL, born in or before 1926.—PREMIUMS, £10, £5, and £3.

1st No. 397 Leggat, Hugh, Arthurlie Park, Barrhead, "Kinmount Peter 2nd" (13,816).
2nd No. 395 Crichton Royal Institution, Crichton Royal Farm, Dumfries, "Crichton Royal Commander" (12,981).
3rd No. 396 Drysdale, R. D., Haughs of Cossans, Forfar, "Cossans Dairy King" (14,076).

EXTRA STOCK.

The following was awarded the Silver Medal:—

No. 398 Leggat, Hugh, Arthurlie Park, Barrhead, "Holmwood Duke" (12,333).

CLASS 59. BULL, born in 1927.—PREMIUMS, £10, £5, and £3.

1st No. 399 Barclay-Harvey, Charles Malcolm, M.P., Dinnet, Aberdeenshire, " Marham Seaman."
2nd No. 402 Robertson, William Berry, Colton, Dunfermline, " Colton Erry."
3rd No. 400 Hambling, Sir Herbert, Bart., D.L., J.P., Rookery Park, Yoxford, Suffolk, " Yoxford Royal."
V No. 401 Ireland, H. B., Ballindean, Kilmany, Dundee, " Ballindean Archie."

FAT CATTLE.

PRESIDENT'S CHAMPION MEDAL for best Fat Animal.

No. 419 Macbeth, W. Gilchrist, Dunira, Comrie (Aberdeen-Angus).
Reserve—No. 411 Howison, A. W., Lochbank, Blairgowrie (Aberdeen-Angus), " Socks."

CLASS 60. OX, any pure breed or cross, born on or after 1st December, 1925, and before 1st December 1926.—PREMIUMS, £7 and £3.

1st No. 405 Reith, Miss E. M., Kennerty Farm, Peterculter, " Jack."
2nd No. 408 Watt, F. R., Balnastraid, Dinnet, " Rover " (Aberdeen-Angus Bull—Cross Cow).
V No. 403 Booth, James C., Dens, Peterhead, " John o' Groat " (Aberdeen-Angus Bull—Cross Cow).
H No. 406 Reith, Miss E. M., Kennerty Farm, Peterculter, " Lovat."

CLASS 61. OX, any pure breed or cross, born on or after 1st December 1926.—PREMIUMS, £7 and £3.

1st No. 411 Howison, A. W., Lochbank, Blairgowrie (Aberdeen-Angus), " Socks."
2nd No. 410 Cumming, J. F., O.B.E., Kinermony Farm, Aberlour (Aberdeen-Angus), " Royster."
V No. 414 Reid, Andrew Thomson, Auchterarder House, Auchterarder (Aberdeen-Angus).
H No. 415 Reith, Miss E. M., Kennerty Farm, Peterculter, " Dug."

CLASS 62. HEIFER, any pure breed or cross, and any age.—PREMIUMS, £7 and £3.

1st No. 419 Macbeth, W. Gilchrist, Dunira, Comrie (Aberdeen-Angus).
2nd No. 417 Duff, Lieut.-Col. G. B., D.S.O., Hatton Castle, Turriff (Aberdeen-Angus), " Iride of Hatton 53rd " (83,551).
V No. 418 Howison, A. W., Lochbank, Blairgowrie, " Russet " (Shorthorn Bull—Aberdeen-Angus Cow).
H No. 420 Reid, William J., Fordhouse of Dun, Montrose, " Kitty."

HORSES

CLYDESDALE STALLION AND COLT.

PRESIDENT'S CHAMPION MEDAL for best Clydesdale Stallion or Colt.

No. 435 Adams, David, Auchencraig, Dumbarton, " Satisfaction " (21,293).
Reserve—No. 465 Reith, Miss E. M., Kennerty Farm, Peterculter, " Renown " (21,525).

Cawdor Challenge Cup, value 50 Guineas, *for best Clydesdale Stallion or Colt registered in the Clydesdale Stud-Book*—given by the Clydesdale Horse Society.

No. 435 Adams, David, Auchencraig, Dumbarton, " Satisfaction " (21,293).

Breeder of best Male Animal of any age in Classes 63, 64, 65, *and* 66—The Silver Medal.

No. 435 Kerr, William, Bandeath, Stirling.

CLASS 63. STALLION, born before 1925.—PREMIUMS, £20, £15, £10, and £4.

1st No. 428 Montgomery, A., & Company, Jordieland, Kirkcudbright, " Weathervane " (21,140).
2nd No. 432 Somerville, T. Purdie, Sandilands, Lanark, " Scotland's Marcellus " (21,383).
3rd No. 422 Adams, David, Auchencraig, Dumbarton, " Robertprint " (21,122).
4th No. 425 Clark, James, Windlaw, Carmunnock, " Royal Enterprise " (21,125).
V No. 434 Wyllie, Scott, Milton of Luncarty, Perth, " Dearham Signet " (20,542).
H No. 427 Marshall, Albert James, Bridgebank, Stranraer, " Bridgebank Monogram " (21,178).
C No. 433 Taylor, James R., Northern Stud, Elgin, " Dunure Endeavour " (19,419).

CLASS 64. ENTIRE COLT, born in 1925.—PREMIUMS, £20, £15, £10, and £4.

1st No. 435 Adams, David, Auchencraig, Dumbarton, " Satisfaction " (21,293).
2nd No. 437 Kilpatrick, James, Craigie Mains, Kilmarnock, " Craigie Winalot " (21,322).
3rd No. 440 Sleigh, John P., of St John's Wells, Fyvie, " Craigie Coronach " (21,319).
4th No. 439 Montgomery, A., & Company, Jordieland, Kirkcudbright, " Rockhill Ambassador " (21,373).

CLASS 65. ENTIRE COLT, born in 1926.—
PREMIUMS, £20, £15, £10, and £4.

1st	No. 465	Reith, Miss E. M., Kennerty Farm, Peterculter, " Renown " (21,525).
2nd	No. 454	Elliot, Charles S., Nisbet Hill, Duns, " Nisbet Reward " (21,517).
3rd	No. 451	Clark, Thomas, Pitlandie, Stanley, Perth, " Full Tide " (21,488).
4th	No. 470	Templeton, T. & M., Sandyknowe, Kelso, " Methlick Pride " (21,510).
V	No. 448	Cairns, James, Abercromby, St Monance, " Spectroscope " (21,537).
H	No. 459	Johnston, John, & Son, Dunmore Home Farm, Falkirk, " Dunmore Emblem."
C	No. 445	Argo, George, Petty, Fyvie, " Petty Attraction " (21,520).
C	No. 458	Johnston, John, & Son, Dunmore Home Farm, Falkirk, " Dunmore Ensign."
C	No. 461	Kilpatrick, James, Craigie Mains, Kilmarnock, " Craigie Victor."
C	No. 466	Roger, Erskine M., Haddoch, Huntly, " Valour " (21,545).

CLASS 66. ENTIRE COLT, born in 1927.—
PREMIUMS, £15, £10, £6, and £4.

1st	No. 484	Templeton, T. & M., Sandyknowe, Kelso, " Britannia."
2nd	No. 485	Templeton, T. & M., Sandyknowe, Kelso, " Caledonia."
3rd	No. 477	Kilpatrick, James, Craigie Mains, Kilmarnock, " Craigie Eureka."
4th	No. 474	Johnston, John, & Son, Dunmore Home Farm, Falkirk, " Dowhill Author."
V	No. 471	Clark, James, Windlaw, Carmunnock, " Royal Factor."
H	No. 486	Templeton, T. & M., Sandyknowe, Kelso, " Earl Haig."
C	No. 473	Gemmell, James, North Bankend, Coalburn, Lanarkshire, " Douglas Castle."
C	No. 479	Park, Robert, Brunstane, Portobello, " Brunstane Zenith."
C	No. 476	Kilpatrick, James, Craigie Mains, Kilmarnock, " Craigie M'Clean."

CLYDESDALE GELDING

Got by a Registered Clydesdale Stallion.

PRESIDENT'S CHAMPION MEDAL for best Clydesdale Gelding.

No. 490 Fleming, James, Barns of Claverhouse, Dundee, " Banker."
Reserve—No. 503 M'Connell, A. W., Scraesburgh, Jedburgh, " Fashion Hint."

Silver Cup, value £10, *for best Clydesdale Gelding*—given by the Marquess of Aberdeen and Temair, K.T.

No. 490 Fleming, James, Barns of Claverhouse, Dundee, " Banker."

CLASS 67. GELDING, born before 1925.—
PREMIUMS, £10, £5, and £3.

1st	No. 490	Fleming, James, Barns of Claverhouse, Dundee, " Banker."
2nd	No. 496	Miller, William S., Jun., Balmanno Castle, Bridge of Earn, " Norman."
3rd	No. 491	Fleming, James, Barns of Claverhouse, Dundee, " King of Angus."
V	No. 494	Gray, John, Ardlaw Mains, Fraserburgh.
H	No. 497	Sleigh, Alexander, Mains of Tolquhon, Tarves, " Prince."
C	No. 488	Brown, Gilbert, Home Farm, Castle Grant, Grantown-on-Spey, " Jock."
C	No. 495	Hendry, Robert, Netherton, Aberlour, " Bob."

CLASS 68. GELDING, born in 1925.—
PREMIUMS, £8, £5, and £3.

1st	No. 503	M'Connell, A. W., Scraesburgh, Jedburgh, " Fashion Hint."
2nd	No. 501	Clark, Alexander, Strathore, Thornton, " Dan."
3rd	No. 498	Allan, Alexander & James, Sweethillock, Lossiemouth, " Billy."
V	No. 499	Anderson, Sir Kenneth S., Bart., K.C.M.G., The Yair, Galashiels, " Elite."
H	No. 505	Milne, Harry, Fetterletter, Fyvie, " Bon-Accord."
C	No. 507	Smith, John, Broompark Farm, Pollokshaws, " The Broom."
C	No. 506	Sleigh, Alexander, Mains of Tolquhon, Tarves, " Darkie."

CLASS 69. GELDING, born in 1926.—
PREMIUMS, £8, £5, and £3.

1st	No. 515	Pollock, Archie J., Hole o' Clean, Glencarse, " Sensation."
2nd	No. 513	Kerr, William, Bell Mount, Penrith, " Lofty King."
3rd	No. 517	Sleigh, John P., of St John's Wells, Fyvie.
V	No. 514	Law, William W., Sunside Rayne, Meikle Wartle.
H	No. 512	Fleming, James, Barns of Claverhouse, Dundee, " Bobbie."
C	No. 516	Sleigh, Harry P., Strichen Mains, Strichen, " Jake."
C	No. 511	Elliot, Charles S., Nisbet Hill, Duns, " George M."

CLYDESDALE MARE AND FILLY.

PRESIDENT'S CHAMPION MEDAL for best Clydesdale Mare or Filly.

No. 529 Murdoch, Alexander, East Hallside, Hallside, Glasgow, " Orange Blossom."
Reserve—No. 537 Park, Robert, Brunstane, Portobello, Mare, " Brunstane Phyllis."

Renfrewshire Perpetual Gold Challenge Cup, value £250, *for best Clydesdale Mare or Filly, " Extra Stock " being eligible to compete.* This Cup, along with an endowment of £500, was provided from money collected in Renfrewshire by the late Provost Muir MacKean of Paisley, and is in commemoration of the Society's first Show in the County of Renfrew in 1913.

No. 529 Murdoch, Alexander, East Hallside, Hallside, Glasgow, " Orange Blossom."
Reserve—No. 537 Park, Robert, Brunstane, Portobello, Mare, " Brunstane Phyllis."

Cawdor Challenge Cup, value 50 Guineas, *for best Clydesdale Mare or Filly registered in the Clydesdale Stud-Book*—given by the Clydesdale Horse Society.

No. 546 Murdoch, Alexander, East Hallside, Hallside, Glasgow, "Mary Rose."

CLASS 70. MARE of any age, with Foal at foot.—
PREMIUMS, £20, £12, £7, and £4.

1st No. 522 Walker, Robert, Langlands, Kilmaurs, "Langlands Blossom."
2nd No. 521 Sleigh, John P., of St John's Wells, Fyvie, "Wells Lorna" (57,325).
3rd No. 518 Beaton, James, Mains of Glack, Pitcaple, "Glack Margaret" (56,402).
4th No. 520 Sleigh, Harry P., Strichen Mains, Strichen, "Strichen Mahala" (56,783).

CLASS 71. YELD MARE, born before 1925.—
PREMIUMS, £15, £9, £6, and £4.

1st No. 529 Murdoch, Alexander, East Hallside, Hallside, Glasgow, "Orange Blossom."
2nd No. 532 Sleigh, John P., of St John's Wells, Fyvie, "Raysun" (56,197).
3rd No. 528 Gray, James, Crawfordston, Kippen, "Margaret."
4th No. 525 Beck, G. M., The Lane, Ravenstonedale, Westmorland, "Craigie Beauty" (56,012).
V No. 524 Argo, George, Petty, Fyvie, "Dunure Roseway" (53,302).
H No. 531 Reith, W. & J., Kennerty Farm, Peterculter, "Real."

CLASS 72. YELD MARE or FILLY, born in 1925.—
PREMIUMS, £15, £9, £6, and £4.

1st No. 537 Park, Robert, Brunstane, Portobello, Mare, "Brunstane Phyllis."
2nd No. 533 Kerr, J. E., of Harviestoun, Dollar, Filly, "Harviestoun Alanna."
3rd No. 536 Park, Robert, Brunstane, Portobello, Mare, "Brunstane Elsie."
4th No. 534 M'Intyre, A. & R., Balulve, Ballygrant, Islay, Filly, "Mairi Dubh."
V No. 535 Milne, Harry, Fetterletter, Fyvie, Filly, "Lilian."
H No. 538 Walker, Colonel Robert W., Portlethen, Aberdeen, Filly, "Quadrille."

William Taylor Memorial Prize of £10 and Certificate *to the Breeder of the best Clydesdale Filly entered in Classes* 73 *and* 74—given by William Taylor Memorial Committee.

No. 546 Mackay, Robert, Ballochmartin, Millport.

CLASS 73. FILLY, born in 1926.—PREMIUMS, £15, £9, £6, and £4.

1st No. 546 Murdoch, Alexander, East Hallside, Hallside, Glasgow, "Mary Rose."
2nd No. 541 Durno, James, Rothiebrisbane, Fyvie, "Miss Silver Tide."
3rd No. 542 Kerr, J. E., of Harviestoun, Dollar, "Harviestoun Alida."
4th No. 549 Templeton, T. & M., Sandyknowe, Kelso, "Pearl."
V No. 539 Beck, G. M., The Lane, Ravenstonedale, Westmorland, "Lane Benefactress."
H No. 544 Mather, William, Milnegraden, Coldstream, "Benona."
C No. 543 Kilpatrick, James, Craigie Mains, Kilmarnock, "Craigie Flower Girl."

CLASS 74. FILLY, born in 1927.—PREMIUMS, £15, £9, £6, and £4.

1st	No. 553	Cairns, James, Abercromby, St Monance, " Abercromby Ella."
2nd	No. 560	Thomson, E. G., Callands, West Linton, " Callands Quality."
3rd	No. 556	Kerr, J. E., of Harviestoun, Dollar, " Harviestoun Nadine."
4th	No. 554	Elliot, Charles S., Nisbet Hill, Duns, " Nisbet Auchenbloom."
V	No. 559	Sleigh, John P., of St John's Wells, Fyvie, " Wells Karen."
H	No. 555	Gray, James, Crawfordston, Kippen, " Etta."
C	No. 552	Burr, Harvey, Little Meldrum, Tarves, " Maid o' Moray."

SHIRE.

PRESIDENT'S CHAMPION MEDAL for best Shire Animal in Classes 75 and 77.

No. 582 Foster, G. R. C., Anstey Hall, Trumpington, Cambridge, Mare, " Erfyl Lady Grey " (88,450).

Reserve—No. 580 Cumber, William J., Theale, Reading, Mare, " Foscote Disdain " (114,252).

CLASS 75. STALLION or COLT born before 1927.—PREMIUMS, £20, £15, £10, and £4.

1st	No. 567	Griffin, F. W., Southlands, Dogsthorpe, Peterborough, Stallion, " Brockhill Padre " (39,852).
2nd	No. 566	Griffin, F. W., Southlands, Dogsthorpe, Peterborough, Stallion, " Ditchingham John " (38,164).
3rd	No. 562	Clark, A. H., & Son, Moulton Eaugate, Spalding, Lincolnshire, Stallion, " Moulton Harboro' " (39,559).
4th	No. 565	Cumber, William J., Theale, Reading, Stallion, " Theale Richard " (40,179).
V	No. 563	Cumber, William J., Theale, Reading, Stallion, " Longforth Champion's Mimic " (40,109).
H	No. 564	Cumber, William J., Theale, Reading, Stallion, " Theale Jock " (40,178).

CLASS 76. GELDING, by a registered Shire Stallion, born before 1926.—PREMIUMS, £10, £5, and £3.

1st	No. 576	Young, H. T. L., Lambourn House, Lambourn, Berkshire, " Bower King John."
2nd	No. 573	Warburton, J. W., Oaklands Farm, Halebarns, Altrincham, Cheshire, " Cæsar."
3rd	No. 569	Mann, Crossman & Paulin, Limited, Albion Brewery, Whitechapel Road, London, E.1, " Albion Major."
V	No. 570	Mann, Crossman & Paulin, Limited, Albion Brewery, Whitechapel Road, London, E.1, " Rutland."
H	No. 574	Warburton, J. W., Oaklands Farm, Halebarns, Altrincham, Cheshire, " Fylde Swell."
C	No. 575	Young, H. T. L., Lambourn House, Lambourn, Berkshire, " Wandle Sparkler."

CLASS 77. YELD MARE or FILLY, born before 1927.— PREMIUMS, £15, £9, £6, and £4.

1st No. 582 Foster, G. R. C., Anstey Hall, Trumpington, Cambridge, Mare, " Erfyl Lady Grey " (88,450).
2nd No. 580 Cumber, William J., Theale, Reading, Mare, " Foscote Disdain " (114,252).
3rd No. 583 Greenwell, Sir Bernard, Bart., Marden Park, Woldingham, Caterham Valley, Surrey, Mare, " Cippenham Muriel " (102,248).
4th No. 581 Devonshire, The Duke of, K.G., Chatsworth, Bakewell, Filly, " Ledwyche Pearl " (120,991).
V No. 577 Barker, C. & M., Stilton House, Helmsley, Yorkshire, Mare, " Edingale Rose " (118,141).

CLASS 78. FILLY, COLT, or GELDING, born in 1927, bred in Scotland, and by a registered Shire Stallion.—PREMIUMS, £8, £5, and £3.

1st No. 593 Fowlie, John, Millhill, Longside, Aberdeenshire, Gelding.
2nd No. 590 Dawson, George, Phingask, Fraserburgh, Gelding, " Sandy.'
3rd No. 587 Burr, James R., Mains of Schivas, Ellon, Filly, " Menina."
V No. 589 Cowie, James, South Haddo, Fyvie, Gelding, " Fyvie."
H No. 594 Mitchell, George, Coburty, Rosehearty, Filly.
C No. 585 Bell, John, Tyrie Mains, Fraserburgh, Filly, " Wick Queen.'
C No. 586 Bell, John, Tyrie Mains, Fraserburgh, Filly, " Bonnie Jean.'

HUNTERS.

PRESIDENT'S CHAMPION MEDAL for best Hunter.

No. 603 Buchanan-Jardine, Sir John William, of Castlemilk, Bart., Castlemilk, Lockerbie, Filly, " Sepia " (6.991).
Reserve—No. 597 Taylor, Mrs J. M., Hendersyde Park, Kelso, " Judy."

CLASS 79. HUNTER BROOD MARE, with Foal at foot.— PREMIUMS, £15, £7, and £3.

1st No. 597 Taylor, Mrs J. M., Hendersyde Park, Kelso, " Judy."
2nd No. 595 Currie, Miss Thomson, Clatto, Cupar, Fife, " Demerara " (6692).
3rd No. 596 Duguid, Miss H. M., Manar, Inverurie, " Zaida " (6772).

Best Hunter Filly, not exceeding three years old, registered with a number in the Hunter Stud-Book, or the entry tendered within a month of the award —Champion Gold Medal, given by the Hunters' Improvement and National Light Horse Breeding Society.

No. 603 Buchanan-Jardine, Sir John William, of Castlemilk, Bart., Castlemilk, Lockerbie, Filly, " Sepia " (6991).
Reserve—No. 607 Buchanan-Jardine, Sir John William, of Castlemilk, Bart., Castlemilk, Lockerbie, Filly, " Re-echo II." (6990).

CLASS 80. YELD MARE, FILLY, or GELDING, born in 1925—*in hand.*—PREMIUMS, £10, £5, and £3.

1st No. 598 Cheape, Brig.-General G. R. H., C.M.G., D.S.O., M.C., Wellfield, Gateside, Fife, Gelding, "The Howling Mob."
2nd No. 599 Spencer-Nairn, Major Sir Robert, Leslie House, Leslie, Gelding, "Cockalorum."

CLASS 81. YELD MARE, FILLY, or GELDING, born in 1926—*in hand.*—PREMIUMS, £10, £5, and £3.

1st No. 603 Buchanan-Jardine, Sir John William, of Castlemilk, Bart., Castlemilk, Lockerbie, Filly, "Sepia" (6991).
2nd No. 602 Buchanan-Jardine, Sir John William, of Castlemilk, Bart., Castlemilk, Lockerbie, Gelding, "Glenholme" (966).
3rd No. 604 Currie, Miss Thomson, Clatto, Cupar, Fife, Filly, "Miss Dibs" (6693).
V No. 606 Spencer-Nairn, Major Sir Robert, Leslie House, Leslie, Gelding, "Cocktail."
H No. 601 Buchan, Miss May S. F., Manar, Inverurie, Filly, "Vereena" (6789).
C No. 605 Duguid, Miss H. M., Manar, Inverurie, Gelding, "Derry."

CLASS 82. FILLY, COLT, or GELDING, born in 1927—*in hand.*—PREMIUMS, £10, £5, and £3.

1st No. 607 Buchanan-Jardine, Sir John William, of Castlemilk, Bart., Castlemilk, Lockerbie, Filly, "Re-echo II." (6990).
2nd No. 608 Duguid, Miss H. M., Manar, Inverurie, Colt, "Fealty."

HIGHLAND PONY.

PRESIDENT'S CHAMPION MEDAL for best Highland Pony.

No. 612 Fletcher, Mrs, of Rosehaugh, Avoch, "Lady Kilcoy" (3375).
Reserve—No. 619 Wooley, Thomas, Commercial Hotel, Bonar Bridge, Sutherland, "Craggan Dubh."

Special Prize of £10 *for the best Highland Stallion, Mare, Colt, or Filly, entered or accepted for entry in the Highland Section of the National Pony Stud-Book, "Extra Stock" being eligible to compete*—given by the National Pony Society.

No. 612 Fletcher, Mrs, of Rosehaugh, Avoch, "Lady Kilcoy" (3375).

CLASS 83. STALLION, born before 1926, not exceeding 14.2 Hands.—PREMIUMS, £8, £4, and £2.

1st No. 610 Glentanar, Lord, Glen Tanar, Aboyne, "Banchor Buidhe of Farr" (1191).

CLASS 84. MARE, born before 1926, not exceeding 14.2 Hands, Yeld or with Foal at foot.—PREMIUMS, £8, £4, and £2.

1st No. 612 Fletcher, Mrs, of Rosehaugh, Avoch, " Lady Kilcoy " (3375).
2nd No. 617 Wright, J. Moncrieff, of Kinmonth, Bridge of Earn, " Isla Ormiston " (4041).
3rd No. 615 Nasmyth, Norman J., of Glen-Farg, Abernethy, " Violet of Glen-Farg " (5254).
V No. 616 Sharp, Miss E. C., Dalnaglar, Blairgowrie, " Rainneach of Dalnaglar."
C No. 611 Atholl, The Duke of, K.T., Blair Castle, Blair Atholl, " Lady Leah " (5106).
C No. 614 Glentanar, Lord, Glen Tanar, Aboyne, " Finona " (5528).

EXTRA STOCK.

The following was awarded the Silver Medal :—

No. 613 Glentanar, Lord, Glen Tanar, Aboyne, " Marge " (5406).

CLASS 85. ENTIRE COLT, born on or after 1st January 1926.—PREMIUMS, £6, £4, and £2.

1st No. 619 Wooley, Thomas, Commercial Hotel, Bonar Bridge, Sutherland, " Craggan Dubh."
2nd No. 618 Glentanar, Lord, Glen Tanar, Aboyne, " Glen Tanar Fingal."

CLASS 86. FILLY, born on or after 1st January 1926.—PREMIUMS, £6, £4, and £2.

1st No. 622 Mackenzie, Major H. M., Moorside Farm, Caton, Lancaster, " White Spot."
2nd No. 623 Wright, J. Moncrieff, of Kinmonth, Bridge of Earn, " Hylda of Kinmonth " (5510).
3rd No. 620 Atholl, The Duke of, K.T., Blair Castle, Blair Atholl, " Lady Nan " (5787).

WESTERN ISLAND PONY.

PRESIDENT'S CHAMPION MEDAL for best Western Island Pony.

No. 627 Fletcher, Mrs, of Rosehaugh, Avoch, " Lady Phœnix " (3376).
Reserve—No. 634 Wright, J. Moncrieff, of Kinmonth, Bridge of Earn, " Isle of Arran Bonnie Jean " (4408).

Special Prize of £10 *for the best Western Island Stallion, Mare, Colt, or Filly, entered or accepted for entry in the Highland Section of the National Pony Stud-Book, " Extra Stock " being eligible to compete*—given by the Highland Pony Society.

No. 627 Fletcher, Mrs, of Rosehaugh, Avoch, " Lady Phœnix " (3376).

CLASS 87. STALLION, born before 1926, not exceeding 14 Hands.—PREMIUMS, £8, £4, and £2.

EXTRA STOCK.

The following was awarded the Medium Silver Medal:—

No. 624 Cross, Sir William, Bart., of Scatwell, Muir of Ord, "Bonnie Charlie of Farr" (1124).

The following was awarded the Bronze Medal:—

No. 625 Mackenzie, J. H. Munro, of Calgary, Isle of Mull, "Pirate" (1204).

CLASS 88. MARE, born before 1926, not exceeding 14 Hands, Yeld or with Foal at foot.—PREMIUMS, £8, £4, and £2.

1st No. 627 Fletcher, Mrs, of Rosehaugh, Avoch, "Lady Phœnix" (3376).
2nd No. 628 Fletcher, Mrs, of Rosehaugh, Avoch, "Ara of Rosehaugh" (5410).
3rd No. 631 Sharp, Miss E. C., Dalnaglar, Blairgowrie, "Sheila of Dalnaglar" (4745).
V No. 632 Webster, Miss E. Ruth, of Ashbrook, Arbroath, "Kilninian" (2430).

EXTRA STOCK.

The following was awarded the Silver Medal:—

No. 634 Wright, J. Moncrieff, of Kinmonth, Bridge of Earn, "Isle of Arran Bonnie Jean" (4408).

The following was awarded the Medium Silver Medal:—

No. 633 Cross, Sir William, Bart., of Scatwell, Muir of Ord, "Patsy" (5294).

CLASS 89. ENTIRE COLT, born on or after 1st January 1926.—PREMIUMS, £6, £4, and £2.

(No entry.)

CLASS 90. FILLY, born on or after 1st January 1926.—PREMIUMS, £6, £4, and £2.

1st No. 637 Glentanar, Lord, Glen Tanar, Aboyne, "Glen Tanar Mililcoma."
2nd No. 636 Fletcher, Mrs, of Rosehaugh, Avoch, "Lilian of Rosehaugh."
3rd No. 640 Wright, J. Moncrieff, of Kinmonth, Bridge of Earn, "Fairy of Kinmonth" (5509).
V No. 639 Mackenzie, J. H. Munro, of Calgary, Isle of Mull, "Bennan" (5784).

SHETLAND PONY.

(ALL SHOWN IN HAND.)

PRESIDENT'S CHAMPION MEDAL for best Shetland Pony.

No. 641 Duffus, Mrs Etta, Penniwells, Elstree, Herts., " Marvel of Earlshall."
Reserve—No. 663 Duffus, Mrs Etta, Penniwells, Elstree, Herts., " Monks Green Heather Belle " (3802).

Silver Cup *for best Shetland Pony of any age, drawn from ordinary Classes*—and shown in saddle (*to be judged by the Hunter Judge*)—given by a past President of the Shetland Pony Stud-Book Society.

No. 664 Duguid, Miss H. M., Manar, Inverurie, " Sylvia of Overacres " (4142).

Special Prizes of £5, £3, and £2 *for best Gelding in saddle competing for above Cup*—given by Colonel Robert W. Walker, Portlethen, Aberdeen.

1st No. 680 Duguid-M'Combie, Colonel W. M., Easter Skene, Skene, " Prince."
2nd No. 679 Duguid, Miss E. Munro, Manar, Inverurie, " Curlie."
3rd No. 678 Clark, Graham, Ashbank, Maberly Street, Aberdeen, " Twilight."

Best Group of Shetland Ponies, drawn from the ordinary Classes, consisting of one male and two females ; one female to be a mare with foal at foot, but the foal not to be reckoned as one of the Group. Premium, £10—given by " Four Lovers of the Breed," per Mr W. Mungall of Transy.

Nos. 641, 654, 663 Duffus, Mrs Etta, Penniwells, Elstree, Herts.

Silver Medal *for the best Shetland Pony of the sex opposite to that of the winner of the President's Medal, entered or eligible for entry in the Shetland Pony Stud-Book*—given by the Shetland Pony Stud-Book Society.

No. 663 Duffus, Mrs Etta, Penniwells, Elstree, Herts., " Monks Green Heather Belle " (3802).

CLASS 91. STALLION, not exceeding 10½ Hands, born before 1925.—PREMIUMS, £8, £5, £3, and £2.

1st No. 641 Duffus, Mrs Etta, Penniwells, Elstree, Herts., " Marvel of Earlshall."
2nd No. 645 Mackenzie, R. W. R., Carpow, Newburgh, Fife, " Brass Hat."
3rd No. 648 Mungall, William, of Transy, Dunfermline, " Sonyad of Transy " (1105).
4th No. 644 Kerr, J. E., of Harviestoun, Dollar, " Glory of Earlshall " (1159).
V No. 643 Hutton, Alfred B., Drumleah Croft, Bonar Bridge, " Coulston Prince " (1150).
H No. 647 M'Laren, James Whyte, Holly Lodge, 26 Cedar Road, Broughty Ferry, " Ronaldo " (1174).

CLASS 92. ENTIRE COLT, not exceeding 10½ Hands, born in 1925 or 1926.—Premiums, £8, £5, £3, and £2.

1st	No. 651	Duffus, Mrs Etta, Penniwells, Elstree, Herts., " Duncan of Overacres."
2nd	No. 653	Mungall, William, of Transy, Dunfermline, " Rosador of Transy."
3rd	No. 652	Mackenzie, R. W. R., Carpow, Newburgh, Fife, " Dollar Boy."
4th	No. 650	Drennan, Robert E., 7 Langstane Place, Aberdeen, " Herdsman of Parkhill."

CLASS 93. MARE, not exceeding 10½ Hands, with Foal at foot.—Premiums, £8, £5, £3, and £2.

1st	No. 654	Duffus, Mrs Etta, Penniwells, Elstree, Herts., " Peace of Coln."
2nd	No. 659	Mackenzie, R. W. R., Carpow, Newburgh, Fife, " Virtuous of Earlshall " (4076).
3rd	No. 657	Kerr, J. E., of Harviestoun, Dollar, " Harviestoun Stella " (4341).
4th	No. 662	Mungall, William, of Transy, Dunfermline, " Thoria of Transy."
V	No. 661	Mungall, William, of Transy, Dunfermline, " Felicia of Transy " (3945).
H	No. 655	Duguid, Miss H. M., Manar, Inverurie, " Vinolia " (3572).

CLASS 94. YELD MARE, not exceeding 10½ Hands. —Premiums, £8, £5, £3, and £2.

1st	No. 663	Duffus, Mrs Etta, Penniwells, Elstree, Herts., " Monks Green Heather Belle " (3802).
2nd	No. 672	Mungall, William, of Transy, Dunfermline, " Stelsa of Transy."
3rd	No. 670	Mackenzie, R. W. R., Carpow, Newburgh, Fife, " Varennes of Anniston."
4th	No. 669	Mackenzie, R. W. R., Carpow, Newburgh, Fife, " Ruby of Earlshall " (3733).
V	No. 668	Kerr, J. E., of Harviestoun, Dollar, " Harviestoun Silvia " (4340).
H	No. 667	Irvine, Dorothy M., Barra Castle, Oldmeldrum, " Winsome of Manar."
C	No. 664	Duguid, Miss H. M., Manar, Inverurie, " Sylvia of Overacres " (4142).

CLASS 95. FILLY, not exceeding 10½ Hands, born in 1925 or 1926.—Premiums, £8, £5, £3, and £2.

1st	No. 673	Duffus, Mrs Etta, Penniwells, Elstree, Herts., " Divagrance of Penniwells."
2nd	No. 674	Kerr, J. E., of Harviestoun, Dollar, " Harviestoun Pryde."
3rd	No. 675	Mackenzie, R. W. R., Carpow, Newburgh, Fife, " Madge of Earlshall."
4th	No. 676	Mungall, William, of Transy, Dunfermline, " Rossina of Transy."

CLASS 96. GELDING, not exceeding 10½ Hands, born before 1926.—PREMIUMS, £8, £5, £3, and £2.

1st	No. 680	Duguid-M'Combie, Colonel W. M., Easter Skene, Skene, "Prince."
2nd	No. 681	Ritchie, Miss A., Netherley House, Stonehaven, "Donnie."
3rd	No. 679	Duguid, Miss E. Munro, Manar, Inverurie, "Curlie."
4th	No. 678	Clark, Graham, "Ashbank," Maberly Street, Aberdeen, "Twilight."

RIDING PONY.

CLASS 97
CLASS 98 } Cancelled on account of insufficient entries. (Regulation 12.)

HORSES IN HARNESS.

PRESIDENT'S CHAMPION MEDAL for best animal in the Classes for Horses in Harness.

No. 693 Highet, John, Curtican, Ayr, Mare, "Wensleydale Flirt" (26,109).
Reserve—No. 692 Kerr, J. E., of Harviestoun, Dollar, Mare, "Harviestoun Vina" (26,534).

The "Glasgow" Champion Challenge Cup, value £50, *for best Horse in Single Harness; competition limited to First, Second, and Third Prize-Winners in Harness Classes, and animals entered as "Extra Stock."*

No. 693 Highet, John, Curtican, Ayr, Mare, "Wensleydale Flirt" (26,109).

CLASS 99. YELD MARE, FILLY, or GELDING, any age, in Harness, exceeding 15 Hands, to be driven in the ring.—PREMIUMS, £15, £10, and £5.

1st	No. 685	Morton, Alexander, Gowanbank, Darvel, Ayrshire, Mare, "Annot Lyle."
2nd	No. 684	M'Donald, George, Roedene, Larch Road, Dumbreck, Glasgow, Mare, "Haddon May" (26,253).
3rd	No. 682	Campbell's, Limited, 15 Bon-Accord Street, Aberdeen, Gelding, "Clyde Antonius" (G 440).
V	No. 683	Campbell's, Limited, 15 Bon-Accord Street, Aberdeen, Gelding, "Glenavon Conquest."

CLASS 100. YELD MARE, FILLY, or GELDING, any age, in Harness, over 14 Hands and not exceeding 15 Hands, to be driven in the ring.—PREMIUMS, £15, £10, and £5.

1st	No. 687	Highet, John, Curtican, Ayr, Gelding, "Auroura" (G 649).
2nd	No. 686	Glen, Enoch, Kaim Park, Bathgate, Gelding, "Glenavon Valour."
3rd	No. 689	Morton, Alexander, Gowanbank, Darvel, Ayrshire, Mare, "Pearl Spray."
V	No. 688	M'Donald, George, Roedene, Larch Road, Dumbreck, Glasgow, Mare, "Dumbreck Maid" (26,662).

CLASS 101. YELD MARE, FILLY, or GELDING, any age, not exceeding 14 Hands, to be driven in the ring.—PREMIUMS, £10, £5, and £3.

1st	No. 692	Kerr, J. E., of Harviestoun, Dollar, Mare, "Harviestoun Vina" (26,534).
2nd	No. 690	Graham, John, 15 Bon-Accord Street, Aberdeen, Mare, "Peggy."

EXTRA STOCK.

The following was awarded the Silver Medal:—

No. 693	Highet, John, Curtican, Ayr, Mare, "Wensleydale Flirt" (26,109).

DRAUGHT GELDINGS IN HARNESS.

CLASS 102. DRAUGHT GELDING, any age, in Harness, shown in Cart or Lorry (and driven by single driver), it being a condition that the Horse must have been regularly worked for a period of twelve weeks prior to the first day of the Show. To be exhibited on FRIDAY, 27th July. Only the Prize-Winners to take part, as required, in the Parade on Friday—PRIZES, £10, £5, £3, £2, and £1.

1st	No. 694	Cunningham, J. & J., Ltd., 35 Charlotte Street, Leith.
2nd	No. 497	Sleigh, Alexander, Mains of Tolquhon, Tarves.
3rd	No. 696	Gilbert, Robert, Scotston, Insch, Aberdeenshire.
4th	No. 695	Cunningham, J. & J., Ltd., 35 Charlotte Street, Leith.
5th	No. 698	Wisely, William, & Sons, Ltd., 31 Virginia Street, Aberdeen, "Clyde."
V	No. 697	Mutter, Howey & Co., Ltd., Charlotte Street, Aberdeen.

JUMPING COMPETITIONS.

Champion Prize of £10 *for the most points in Prizes with one Horse in Classes* 1, 3, *and* 5.

CONDITIONS.—First Prize to count five points; Second Prize, four points; Third Prize, three points; Fourth Prize, two points; Fifth Prize, one point. The money to be evenly divided in the event of a tie.

Grange, F. V., Alvaston, Nantwich, 11½ points.

CLASS 1. HORSE or PONY, any height.—PREMIUMS, £20, £15, £10, £5, and £3.

1st		Taylor, Joseph, Moss Hall, Stretton, Warrington, Gelding, "Battleaxe."
2nd	Equal	Mills, B. W., 20 West Kensington Gardens, London, Mare, "Plain Jane."
3rd		Reynard, J. N., Manuel House, Linlithgow, Gelding, "Cockleroi."
4th		Mills, B. W., 20 West Kensington Gardens, London, Gelding, "Achahha."
5th		Grange, F. V., Alvaston, Nantwich, Gelding, "Desire."

CLASS 2. HORSE or PONY, any height, which has not previously won a Prize of more than £10 at this or any other Competition.—PREMIUMS, £10, £8, £5, £3, and £2.

1st Dudgeon, Captain J. H., Cavalry Barracks, Colinton, Mare, "Marie."
2nd Ronaldson, William, Market Hill, Wick, Mare, "Lady Grey."
3rd Reynard, J. N., Manuel House, Linlithgow, Gelding, "Cockleroi."
4th Taylor, Joseph, Moss Hall, Stretton, Warrington, Mare, "Gem."
5th Dudgeon, Captain J. H., Cavalry Barracks, Colinton, Gelding, "Jeff."

CLASS 3. HORSE or PONY, any height, Handicap, hurdles and gate being raised 8 inches for the winner of the first prize, and 4 inches for the winner of the second prize in Class 1.—PREMIUMS, £20, £15, £10, £5, and £3.

1st Mills, B. W., 20 West Kensington Gardens, London, Gelding, "Achahha."
2nd Grange, F. V., Alvaston, Nantwich, Gelding, "Desire."
3rd Mills, B. W., 20 West Kensington Gardens, London, Gelding, "Kingo."
Taylor, Joseph, Moss Hall, Stretton, Warrington, Mare, "Gem."
4th Dudgeon, Captain J. H., Cavalry Barracks, Colinton, Gelding,
Equal "Jeff."
5th Mills, B. W., 20 West Kensington Gardens, London, Mare, "Plain Jane."
Taylor, Joseph, Moss Hall, Stretton, Warrington, Gelding, "Battleaxe."

CLASS 4. HORSE or PONY, any height.—PREMIUMS, £10, £8, £5, £3, and £2.

1st Mills, B. W., 20 West Kensington Gardens, London, Gelding,
Equal "Achahha."
2nd Grange, F. V., Alvaston, Nantwich, Gelding, "Desire."
3rd Taylor, Joseph, Moss Hall, Stretton, Warrington, Mare, "Gem."
4th Mills, B. W., 20 West Kensington Gardens, London, Mare, "Plain Jane."
5th Reynard, J. N., Manuel House, Linlithgow, Gelding, "Cockleroi."

CLASS 5. HORSE or PONY, any height, Handicap, hurdles and gate being raised 8 inches for the winner of the first prize, and 4 inches for the winner of the second prize in either of Classes 1 or 3—4 inches extra for the winner of the two first prizes in Classes 1 and 3.—PREMIUMS, £15, £10, £5, £3, and £2.

1st Grange, F. V., Alvaston, Nantwich, Gelding, "Desire."
2nd Taylor, Joseph, Moss Hall, Stretton, Warrington, Mare, "Gem."
3rd Mills, B. W., 20 West Kensington Gardens, London, Mare, "Plain Jane."
4th Dudgeon, Captain J. H., Cavalry Barracks, Colinton, Gelding, "Jeff."
5th Taylor, Joseph, Moss Hall, Stretton, Warrington, Gelding, "Battleaxe."

SHEEP

BLACKFACE.

PRESIDENT'S CHAMPION MEDAL for best Blackface Sheep.

No. 703 Cadzow, Charles, Weston, Dunsyre, Carstairs Junction, "Field-Marshal."
Reserve—No. 732 Hamilton, M. G., Woolfords, Cobbinshaw.

CLASS 103. TUP above one Shear.—PREMIUMS, £12, £8, £4, and £2.

1st	No. 703	Cadzow, Charles, Weston, Dunsyre, Carstairs Junction, "Field-Marshal."
2nd	No. 709	Hamilton, M. G., Woolfords, Cobbinshaw.
3rd	No. 699	Anderson, W. W., Colzium, Kirknewton, "Earl of Home."
4th	No. 706	Clark, William M., & Sons, Crossflatt, Muirkirk, Ayrshire, "Substantial."
V	No. 718	Stewart, Robert, Crianlarich, Perthshire.
H	No. 700	Anderson, W. W., Colzium, Kirknewton, "Sunny Jim."
C	No. 701	Black, J. Belfrage, Holton, Milnathort, "Escalator."
C	No. 707	Crosswoodhill Co., Crosswoodhill, West Calder, "Carona."
C	No. 712	Lindsay, Thomas, Ascreavie, Kirriemuir.
C	No. 716	Mitchell, William, Hazelside, Douglas.

CLASS 104. SHEARLING TUP.—PREMIUMS, £12, £8, £4, and £2.

1st	No. 732	Hamilton, M. G., Woolfords, Cobbinshaw.
2nd	No. 733	Hamilton, M. G., Woolfords, Cobbinshaw.
3rd	No. 724	Cadzow, Charles, Weston, Dunsyre, Carstairs Junction.
4th	No. 737	Lindsay, William, Balintore, Kirriemuir, "Polar Star."
V	No. 731	Hamilton, M. G., Woolfords, Cobbinshaw.
H	No. 726	Clark, William M., & Sons, Crossflatt, Muirkirk, Ayrshire.
C	No. 719	Black, J. Belfrage, Holton, Milnathort.
C	No. 722	Cadzow, Charles, Weston, Dunsyre, Carstairs Junction.
C	No. 735	Hamilton, M. G., Woolfords, Cobbinshaw.
C	No. 740	Mitchell, William, Hazelside, Douglas.
C	No. 742	Mitchell, William, Hazelside, Douglas.

CLASS 105. SHEARLING TUP, which shall have been entirely out-wintered, and not housed or house-fed at any time, and not clipped *before* 21st May 1928.—PREMIUMS, £12, £8, £4, and £2.

1st	No. 764	Novar Estates, Limited, Novar, Evanton, Ross-shire.
2nd	No. 765	Novar Estates, Limited, Novar, Evanton, Ross-shire.
3rd	No. 760	Novar Estates, Limited, Novar, Evanton, Ross-shire.
4th	No. 759	Lindsay, Thomas, Ascreavie, Kirriemuir.
V	No. 762	Novar Estates, Limited, Novar, Evanton, Ross-shire.
H	No. 758	Lindsay, Thomas, Ascreavie, Kirriemuir.
C	No. 757	Lindsay, Thomas, Ascreavie, Kirriemuir.
C	No. 761	Novar Estates, Limited, Novar, Evanton, Ross-shire.
C	No. 767	Wallace, Falconer L., of Candacraig and Balcairn, Strathdon.
C	No. 768	Wallace, Falconer L., of Candacraig and Balcairn, Strathdon.

CLASS 106. TUP LAMB.—Premiums, £5, £3, and £2.

1st	No. 771	Anderson, William, Craigends, Fenwick, Kilmarnock.
2nd	No. 776	Black, J. Belfrage, Holton, Milnathort.
3rd	No. 772	Anderson, William, Craigends, Fenwick, Kilmarnock.
V	No. 777	Rottenburg, F. A., Lochlane, Crieff.
H	No. 780	Wallace, Falconer L., of Candacraig and Balcairn, Strathdon.
C	No. 775	Black, J. Belfrage, Holton, Milnathort.
C	No. 779	Wallace, Falconer L., of Candacraig and Balcairn, Strathdon.

CLASS 107. EWE, above one Shear, with her Lamb at foot.—Premiums, £10, £5, and £2.

1st	No. 784	Robson, John, Newton, Tarset, North Tyne, " Fair Maid."
2nd	No. 782	Black, J. Belfrage, Holton, Milnathort.
3rd	No. 783	Howison, A. W., Rannagulzion, Blairgowrie.
V	No. 781	Anderson, William, Craigends, Fenwick, Kilmarnock.
H	No. 785	Wallace, Falconer L., of Candacraig and Balcairn, Strathdon.

CLASS 108. SHEARLING EWE or GIMMER.—Premiums, £10, £5, and £2.

1st	No. 798	Robson, John, Newton, Tarset, North Tyne.
2nd	No. 788	Black, J. Belfrage, Holton, Milnathort, " Miss Moira."
3rd	No. 787	Anderson, W. W., Colzium, Kirknewton.
V	No. 792	Lindsay, Thomas, Ascreavie, Kirriemuir.
H	No. 793	Lindsay, Thomas, Ascreavie, Kirriemuir.
C	No. 794	Novar Estates, Limited, Novar, Evanton, Ross-shire.
C	No. 786	Anderson, William, Craigends, Fenwick, Kilmarnock.

CHEVIOT.

PRESIDENT'S CHAMPION MEDAL for best Cheviot Sheep.

No. 872 Robson, John, Newton, Tarset, North Tyne.
Reserve—No. 850 Elliot, Arthur, Hindhope, Jedburgh.

Perpetual Challenge Cup, value £25, *gifted by Mr J. Borthwick, for best Sheep in the Cheviot Classes*—given by Cheviot Sheep Society.
No. 872 Robson, John, Newton, Tarset, North Tyne.

CLASS 109. TUP above one Shear.—Premiums, £12, £8, £4, and £2.

1st	No. 802	Elliot, Arthur, Hindhope, Jedburgh, " Kenneth."
2nd	No. 810	Robson, John, Millknowe, Duns, " Marshal Haig."
3rd	No. 811	Robson, John, Newton, Tarset, North Tyne, " Sprig."
4th	No. 806	Elliot, Thomas R., Attonburn, Kelso.
V	No. 805	Elliot, Robert T., Chatto, Kelso.
H	No. 812	Scott, Walter P., Falnash, Hawick, " Gallant Prince."

CLASS 110. SHEARLING TUP.—PREMIUMS, £12, £8, £4, and £2.

1st	No. 832	Thomson, Messrs, Bushelhill, Cockburnspath.
2nd	No. 818	Elliot, Frank J., Crunklaw, Duns.
3rd	No. 831	Thomson, Messrs, Bushelhill, Cockburnspath.
4th	No. 821	Elliot, Robert T., Chatto, Kelso.
V	No. 817	Elliot, Frank J., Crunklaw, Duns.
H	No. 819	Elliot, John, Blackhaugh, Clovenfords.
C	No. 830	Thomson, Messrs, Bushelhill, Cockburnspath.
C	No. 834	Thorburn & Grieve, Glenormiston, Innerleithen.

CLASS 111. TUP LAMB.—PREMIUMS, £5, £3, and £2.

1st	No. 848	Thomson, Messrs, Bushelhill, Cockburnspath, "Gallant Aberdonian."
2nd	No. 837	Elliot, John, Blackhaugh, Clovenfords.
3rd	No. 838	Elliot, John, Blackhaugh, Clovenfords.
V	No. 846	Robson, John, Millknowe, Duns.
H	No. 840	Elliot, Thomas R., Attonburn, Kelso.
C	No. 835	Elliot, Arthur, Hindhope, Jedburgh.
C	No. 839	Elliot, Robert T., Chatto, Kelso.
C	No. 841	Elliot, Thomas R., Attonburn, Kelso.

CLASS 112. EWE, above one Shear, with her Lamb at foot.—PREMIUMS, £10, £5, and £2.

1st	No. 850	Elliot, Arthur, Hindhope, Jedburgh.
2nd	No. 858	Thomson, Messrs, Bushelhill, Cockburnspath.
3rd	No. 854	Elliot, Thomas R., Attonburn, Kelso.
V	No. 851	Elliot, Arthur, Hindhope, Jedburgh.
H	No. 855	Robson, John, Millknowe, Duns, "Queen of the Victory's."
C	No. 859	Thorburn & Grieve, Glenormiston, Innerleithen.

CLASS 113. SHEARLING EWE or GIMMER—PREMIUMS, £10, £5, and £2.

1st	No. 872	Robson, John, Newton, Tarset, North Tyne.
2nd	No. 874	Thomson, Messrs, Bushelhill, Cockburnspath.
3rd	No. 863	Elliot, John, Blackhaugh, Clovenfords.
V	No. 867	Elliot, Thomas R., Attonburn, Kelso.
H	No. 873	Thomson, Messrs, Bushelhill, Cockburnspath, "Queen's Cairn."
C	No. 862	Elliot, John, Blackhaugh, Clovenfords.
C	No. 870	Robson, John, Millknowe, Duns.

BORDER LEICESTER.

PRESIDENT'S CHAMPION MEDAL for best Border Leicester Sheep.

No. 930 Niven, Alexander, Ayton, Newburgh, Fife.
Reserve—No. 883 Young, John, Skerrington Mains, Hurlford, "Sandyknowe Supreme" (7382).

Tweeddale Gold Medal *for best Border Leicester Tup*—Annual free income from fund of £500.

No. 883 Young, John, Skerrington Mains, Hurlford, "Sandyknowe Supreme" (7382).

Gold Medal *for best Male animal in the Border Leicester Classes, registered or eligible for registration in the Border Leicester Flock-Book. Animals entered as "Extra Stock" not eligible.* Given by the Society of Border Leicester Sheep-Breeders.

No. 883 Young, John, Skerrington Mains, Hurlford, "Sandyknowe Supreme" (7382).

CLASS 114. TUP, above one Shear.—PREMIUMS, £12, £8, £4, and £2.

1st	No. 883	Young, John, Skerrington Mains, Hurlford, "Sandyknowe Supreme" (7382).
2nd	No. 878	Melrose, A. J., Hordley, Woodstock, Oxon., "Satisfaction" (7383).
3rd	No. 881	Stewart, John, of Struthers, Woodburne House, Ceres, Fife, "Ceres" (7535).
4th	No. 880	Rottenburg, F. A., Lochlane, Crieff, "Longcroft Gentleman" (7306).
V	No. 877	Fordyce, John, Silverford, Gamrie, Banff, "Monomark" (7329).
H	No. 876	Dickinson, R. & W. B., Longcroft, Oxton, Berwickshire, "Craigo Pride" (6552).

CLASS 115. SHEARLING TUP.—PREMIUMS, £12, £8, £4, and £2.

1st	No. 891	Howie, James, Hillhouse, Kilmarnock, "High Merit" (7625).
2nd	No. 889	Dickinson, R. & W. B., Longcroft, Oxton, Berwickshire.
3rd	No. 896	Niven, Alexander, Ayton, Newburgh, Fife.
4th	No. 898	Stewart, John, of Struthers, Woodburne House, Ceres, Fife.
V	No. 893	Macbeth, W. Gilchrist, Dunira, Comrie.
H	No. 884	Clark, Mrs, Luggate, Haddington.
C	No. 886	Cross, Thomas, Knockdon, Maybole.
C	No. 894	Melrose, A. J., Hordley, Woodstock, Oxon.

CLASS 116. TUP LAMB—PREMIUMS, £5, £3, and £2.

1st	No. 905	Fordyce, John, Silverford, Gamrie, Banff.
2nd	No. 922	Young, John, Skerrington Mains, Hurlford.
3rd	No. 912	Macbeth, W. Gilchrist, Dunira, Comrie.
V	No. 924	Young, John, Skerrington Mains, Hurlford.
H	No. 910	Howie, James, Jun., Eglinton Mains, Irvine.
C	No. 906	Fordyce, John, Silverford, Gamrie, Banff.
C	No. 908	Howie, James, Hillhouse, Kilmarnock.

Gold Medal *for best Female animal in the Border Leicester Classes, registered or eligible for registration in the Border Leicester Flock-Book. Animals entered as "Extra Stock" not eligible.* Given by the Society of Border Leicester Sheep-Breeders.

No. 930 Niven, Alexander, Ayton, Newburgh, Fife.

CLASS 117. EWE, above one Shear.—PREMIUMS, £10, £5, and £2.

1st	No. 930	Niven, Alexander, Ayton, Newburgh, Fife.
2nd	No. 925	Cross, Thomas, Knockdon, Maybole.
3rd	No. 927	Fordyce, John, Silverford, Gamrie, Banff, B 1 (BL 109).
V	No. 929	Moyes, William Cairns, Renmure, Inverkeilor.
H	No. 933	Young, John, Skerrington Mains, Hurlford, C 2 (BL 255).
C	No. 932	Wilson, William, Mains of Corsindae, Sauchen, Cluny, Aberdeenshire.

CLASS 118. SHEARLING EWE or GIMMER.—PREMIUMS, £10, £5, and £2.

1st	No. 945	Niven, Alexander, Ayton, Newburgh, Fife.
2nd	No. 944	Niven, Alexander, Ayton, Newburgh, Fife.
3rd	No. 939	Howie, James, Jun., Eglinton Mains, Irvine.
V	No. 941	Macbeth, W. Gilchrist, Dunira, Comrie.
H	No. 943	Moyes, William Cairns, Renmure, Inverkeilor.

CLASS 119. EWE LAMB.—PREMIUMS, £5, £3, and £2.

1st	No. 953	Howie, James, Hillhouse, Kilmarnock.
2nd	No. 954	Howie, James, Jun., Eglinton Mains, Irvine.
3rd	No. 962	Wilson, William, Mains of Corsindae, Sauchen, Cluny, Aberdeenshire.
V	No. 965	Young, John, Skerrington Mains, Hurlford.
H	No. 964	Young, John, Skerrington Mains, Hurlford.

HALF-BRED.

CLASS 120.
CLASS 121.
CLASS 122.
CLASS 123.
CLASS 124.

Cancelled owing to insufficient entries. (Regulation 12.)

OXFORD-DOWN.

PRESIDENT'S CHAMPION MEDAL for best pen of Oxford-Down Sheep.

No. 988 Templeton, T. & M., Sandyknowe, Kelso.
Reserve—No. 973 Templeton, T. & M., Sandyknowe, Kelso.

Scottish Oxford-Down Sheep-Breeders' Challenge Bowl, value £50, *for the best Oxford-Down animal bred in Scotland, to be won three times by the same owner, but with different sheep, before becoming his property*—given by Oxford-Down Sheep-Breeders' Association.

No. 988 Templeton, T. & M., Sandyknowe, Kelso.

CLASS 125. SHEARLING TUP.—PREMIUMS, £8, £5, and £3.

1st	No. 973	Templeton, T. & M., Sandyknowe, Kelso.
2nd	No. 968	Malcolm, William M., Softlaw, Kelso.
3rd	No. 974	Templeton, T. & M., Sandyknowe, Kelso.
V	No. 972	Templeton, T. & M., Sandyknowe, Kelso.
H	No. 966	Graham, R. & J., Kaimflat, Kelso.
C	No. 970	Malcolm, William T., Whittingehame Mains, Haddington, " Napoleon."

CLASS 126. SHEARLING EWE or GIMMER.—PREMIUMS, £8, £5, and £3.

1st	No. 977	Malcolm, William M., Softlaw, Kelso.
2nd	No. 979	Templeton, T. & M., Sandyknowe, Kelso.
3rd	No. 980	Templeton, T. & M., Sandyknowe, Kelso.
V	No. 978	Malcolm, William M., Softlaw, Kelso.
H	No. 975	Graham, R. & J., Kaimflat, Kelso.
C	No. 976	Graham, R. & J., Kaimflat, Kelso (G 8/279).

CLASS 127. TUP LAMB.—PREMIUMS, £8, £5, and £3.

1st	No. 988	Templeton, T. & M., Sandyknowe, Kelso.
2nd	No. 989	Templeton, T. & M., Sandyknowe, Kelso.
3rd	No. 990	Templeton, T. & M., Sandyknowe, Kelso.
V	No. 987	Malcolm, William T., Whittingehame Mains, Haddington.
H	No. 986	Malcolm, William T., Whittingehame Mains, Haddington.
C	No. 984	Malcolm, William M., Softlaw, Kelso.

CLASS 128. THREE EWE LAMBS.—PREMIUMS, £8, £5, and £2.

1st	No. 992	Malcolm, William M., Softlaw, Kelso.
2nd	No. 993	Templeton, T. & M., Sandyknowe, Kelso.
3rd	No. 991	Graham, R. & J., Kaimflat, Kelso.

SUFFOLK.

PRESIDENT'S CHAMPION MEDAL for best pen of Suffolk Sheep.

No. 1002 Rintoul, William, Kilmux, Leven.
Reserve—No. 1016 Duncan, Commander J. A., Parkhill, Arbroath.

CLASS 129. TUP, one Shear and over.—PREMIUMS, £8, £5, and £3.

1st	No. 997	Rintoul, William, Kilmux, Leven, " Kilmux Tarzan."
2nd	No. 996	Rintoul, William, Kilmux, Leven, " Grange Guardsman."
3rd	No. 994	Duncan, Commander J. A., Parkhill, Arbroath, " Parkhill Talisman " (19,548).
V	No. 998	Stodart, Charles, Leaston, Humbie, " Leaston Star."
C	No. 995	Hutton, Duncan F., Gibliston, Kilconquhar, " Kilmux Darling " (19,675).

CLASS 130. SHEARLING EWE or GIMMER.—PREMIUMS, £8, £5, and £3.

1st	No. 1002	Rintoul, William, Kilmux, Leven.
2nd	No. 999	Golightly, William, Whitelaw, Haddington.
3rd	No. 1000	Golightly, William, Whitelaw, Haddington.
V	No. 1003	Rintoul, William, Kilmux, Leven.
C	No. 1004	Thomson, William A., Newton Farm, Markinch.

CLASS 131. TUP LAMB.—PREMIUMS, £8, £5, and £3.

1st	No. 1012	Rintoul, William, Kilmux, Leven.
2nd	No. 1007	Duncan, Commander J. A., Parkhill, Arbroath.
3rd	No. 1013	Rintoul, William, Kilmux, Leven.
V	No. 1005	Duncan, Commander J. A., Parkhill, Arbroath.
H	No. 1014	Stodart, Charles, Leaston, Humbie.
C	No. 1015	Stodart, Charles, Leaston, Humbie.

CLASS 132. THREE EWE LAMBS.—PREMIUMS, £8, £5, and £2.

1st	No. 1016	Duncan, Commander J. A., Parkhill, Arbroath.
2nd	No. 1018	Rintoul, William, Kilmux, Leven.
3rd	No. 1020	Thomson, William A., Newton Farm, Markinch (B 54).
V	No. 1019	Stodart, Charles, Leaston, Humbie (L 27) (L 15) (L 2).
H	No. 1017	Golightly, William, Whitelaw, Haddington.

SHROPSHIRE.

PRESIDENT'S CHAMPION MEDAL for best Shropshire Sheep.

No. 1023 Buttar, T. A., Corston, Coupar-Angus.
Reserve—No. 1021 Buttar, T. A., Corston, Coupar-Angus.

CLASS 133. TUP, any age.—PREMIUMS, £6, £4, and £2.

1st	No. 1023	Buttar, T. A., Corston, Coupar-Angus.
2nd	No. 1021	Buttar, T. A., Corston, Coupar-Angus.
3rd	No. 1022	Buttar, T. A., Corston, Coupar-Angus.
V	No. 1026	Grimond, John, Lornty Farm, Blairgowrie, "Buttarcup."
C	No. 1025	Grimond, John, Lornty Farm, Blairgowrie, "Kingcup."

CLASS 134. EWE or GIMMER.—PREMIUMS, £5, £3, and £2.

1st	No. 1028	Buttar, T. A., Corston, Coupar-Angus.
2nd	No. 1029	Buttar, T. A., Corston, Coupar-Angus.
3rd	No. 1027	Buttar, T. A., Corston, Coupar-Angus.
V	No. 1031	Grimond, John, Lornty Farm, Blairgowrie, "Silver Cup."
H	No. 1030	Grimond, John, Lornty Farm, Blairgowrie, "Gold Cup."

DORSET HORN.

PRESIDENT'S CHAMPION MEDAL for best Dorset Horn Sheep.

No. 1036 Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline, " Symondsbury No. 390 " (5462).

Reserve—No. 1033 Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline, " Broomhall No. 3 " (5100).

CLASS 135. TUP, any age.—PREMIUMS, £6, £4, and £2.

1st No. 1033 Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline, " Broomhall No. 3 " (5100).
2nd No. 1034 Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline, " Broomhall No. 6."

EXTRA STOCK.

The following was awarded the Silver Medal :—

No. 1036 Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline, " Symondsbury No. 390 " (5462).

CLASS 136. EWE or GIMMER.—PREMIUMS, £5, £3, and £2.

1st No. 1039 Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline.
2nd No. 1040 Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline.
3rd No. 1037 Bruce, Lord, Broomhall, Dunfermline.
V No. 1041 Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline.

FAT SHEEP.

CLASS 137. THREE FAT LAMBS, any Breed or Cross, dropped in the year of the Show.—PREMIUMS, £5, £3, and £2.

1st No. 1043 Bruce, Lord, Broomhall, Dunfermline (Dorset Horn).
2nd No. 1042 Auchterlonie, Alexander J., Leckerstone, Dunfermline (Hampshire Tup and Half-breed Ewes).
3rd No. 1045 Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline (Dorset Down Tup and Border Leicester—Dorset Horn Cross Ewes).
V No. 1044 Bruce, Lord, Broomhall, Dunfermline (Dorset Down).
H No. 1046 Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline (Dorset Horn).
C No. 1047 Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline (Corrisdale Tup and Dorset Down—Dorset Horn Cross Ewes).

CLASS 138. THREE FAT LAMBS, out of Blackface Ewes, dropped on or after 1st March of the year of the Show.—PREMIUMS, £5, £3, and £2.

(No Entry.)

GOATS

PRESIDENT'S CHAMPION MEDAL for best Animal in the Goat Classes.

No. 1067 Henderson, Miss Marjorie, The Riding, Hexham (British-Alpine), " Riding Thistle Fairy " (HB 8059).
Reserve—No. 1057 Forteviot, Lady, Dupplin Castle, Perth (Anglo-Swiss), " Dupplin Dulcie " (HB 6964).

The Competition for Goats is recognised by the British Goat Society, which will give Challenge Certificates (qualifying for a Championship) :—

For the best Male Goat over one year.

No. 1049 Courage, David, 60 Carden Place, Aberdeen (Anglo-Nubian-Swiss), " †Leazes Fiacre " (HB 6856).

For the best Female Goat over two years that has borne a kid.

No. 1057 Forteviot, Lady, Dupplin Castle, Perth (Anglo-Swiss), " Dupplin Dulcie " (HB 6964).

For the best dual purpose Goat over two years that has borne a kid.

No. 1058 Forteviot, Lady, Dupplin Castle, Perth (British-Toggenburg), " Dupplin Dusk " Q* (HB 7017).

A Breed Challenge Certificate for the best Anglo-Nubian Female Goat over two years that has borne a kid.

(No Entry.)

A Bronze Medal for the best Female exhibit in Classes 142, 143, 144, *and* 145.

No. 1067 Henderson, Miss Marjorie, The Riding, Hexham (British-Alpine), " Riding Thistle Fairy " (HB 8059).

A Bronze Medal for the best Male exhibit in Classes 139, 140, *and* 141.

No. 1049 Courage, David, 60 Carden Place, Aberdeen (Anglo-Nubian-Swiss), " †Leazes Fiacre " (HB 6856).

Challenge Cup, value 20 Guineas, *for the best Female Goat in the Show*—given by Lord Dewar, London.

No. 1067 Henderson, Miss Marjorie, The Riding, Hexham (British-Alpine), " Riding Thistle Fairy " (HB 8059).
Reserve—No. 1057 Forteviot, Lady, Dupplin Castle, Perth (Anglo-Swiss), " Dupplin Dulcie " (HB 6964).

Challenge Cup, value £10, *for best Female Anglo-Nubian Goat over two years old, in milk, entered in the Anglo-Nubian Section of the Herd-Book, " Extra Stock " being eligible to compete*—given by Mrs S. Macdonald, Garrochty.

(No Entry.)

CLASS 139. MALE GOAT, any Variety, over two years.—PREMIUMS, £3, £2, and £1.

1st No. 1049 Courage, David, 60 Carden Place, Aberdeen (Anglo-Nubian-Swiss), "†Leazes Fiacre" (HB 6856).
2nd No. 1048 Cameron, Mrs Allan, Darris, Dores, Inverness, (Anglo-Nubian-Toggenburg), "Ivanhoe of Buchanan" (HB 7493).

CLASS 140. MALE GOAT, any Variety, over one but not exceeding two years.—PREMIUMS, £3, £2, and £1.

(No Entry.)

CLASS 141. MALE KID, any Variety, not exceeding one year.—PREMIUMS, £3, £2, and £1.

1st No. 1053 Henderson, Miss Marjorie, The Riding, Hexham (British-Alpine), "Riding Borderer" (HB 8666).
2nd No. 1052 Forteviot, Lady, Dupplin Castle, Perth (British-Alpine), "Dupplin Abbotspeed" (HB 8692).
3rd No. 1050 Cameron, Mrs Allan, Darris, Dores, Inverness (British-Saanen), "Cornish Insolence" (HB 8648).

CLASS 142. FEMALE GOAT, Anglo-Nubian, in Milk.—PREMIUMS, £3, £2, and £1.

(No Entry.)

CLASS 143. FEMALE GOAT, any other Variety, in Milk.—PREMIUMS, £3, £2, and £1.

1st No. 1057 Forteviot, Lady, Dupplin Castle, Perth (Anglo-Swiss), "Dupplin Dulcie" (HB 6964).
2nd No. 1058 Forteviot, Lady, Dupplin Castle, Perth (British-Toggenburg), "Dupplin Dusk" Q* (HB 7017).
3rd No. 1056 Courage, David, 60 Carden Place, Aberdeen (British), "Katja" (HB 7746).
V No. 1059 Henderson, Miss Marjorie, The Riding, Hexham (British-Alpine), "Riding Thistledown" (HB 5318).
H No. 1054 Courage, David, 60 Carden Place, Aberdeen (Anglo-Nubian-Swiss), "Leazes Solito" (HB 5584).
C No. 1055 Courage, David, 60 Carden Place, Aberdeen (British), "Adrienne" (HB 7745).

CLASS 144. GOATLING, any Variety, over one but not exceeding two years.—PREMIUMS, £3, £2, and £1.

1st No. 1067 Henderson, Miss Marjorie, The Riding, Hexham (British-Alpine), "Riding Thistle Fairy" (HB 8059).
2nd No. 1063 Courage, David, 60 Carden Place, Aberdeen (British), "Medora" (HB 8359).
3rd No. 1066 Forteviot, Lady, Dupplin Castle, Perth (Anglo-Swiss), "Dupplin Delight" (HB 8080).
V No. 1062 Cameron, Mrs Allan, Darris, Dores, Inverness (Anglo-Swiss), "Dileas" (SR 449).
H No. 1064 Courage, David, 60 Carden Place, Aberdeen (British), "Violette" (HB 8360).
C No. 1065 Forteviot, Lady, Dupplin Castle, Perth (Anglo-Swiss), "Dupplin Dodo" (HB 8081).

CLASS 145. FEMALE KID, any Variety, not exceeding one year.—PREMIUMS, £3, £2, and £1.

1st No. 1071 Forteviot, Lady, Dupplin Castle, Perth (Toggenburg), "Dupplin Angela" (HB 8594).
2nd No. 1069 Courage, David, 60 Carden Place, Aberdeen (British), "Smiler" (HB 8656).
3rd No. 1072 Forteviot, Lady, Dupplin Castle, Perth (British-Alpine), "Dupplin Amy" (HB 8694).
V No. 1070 Courage, David, 60 Carden Place, Aberdeen (British), "Teresing" (HB 8657).
H No. 1068 Courage, David, 60 Carden Place, Aberdeen (British), "Manette" (HB 8654).

Silver Jug, value £5, *to the winner of the First Prize in Class* 146—given by the Marchioness of Aberdeen and Temair.

No. 1058 Forteviot, Lady, Dupplin Castle, Perth (British-Toggenburg), "Dupplin Dusk" Q* (HB 7017).

CLASS 146. MILKING COMPETITION, open to Classes 142 and 143. *The Milk yielded by Goats in this Class shall be the property of the Society.*—PREMIUMS, £3, £2, and £1.

1st No. 1058 Forteviot, Lady, Dupplin Castle, Perth (British-Toggenburg), "Dupplin Dusk" Q* (HB 7017).
2nd No. 1057 Forteviot, Lady, Dupplin Castle, Perth (Anglo-Swiss), "Dupplin Dulcie" (HB 6964).
3rd No. 1059 Henderson, Miss Marjorie, The Riding, Hexham (British-Alpine), "Riding Thistledown" (HB 5318).

PIGS

LARGE WHITE.

PRESIDENT'S CHAMPION MEDAL for best Large White Pig.

No. 1074 Chivers & Sons, Limited, Histon, Cambridge, " Wentworth Lion 23rd " (53,973).
Reserve—No. 1101 Cowper, John E. B., Gogar Mains, Corstorphine, " Gogar Lady Maggie " (Ear No. 877).

Gold Medal, value £5, *for the best Large White Boar in the Show*—given by the National Pig-Breeders' Association.

No. 1074 Chivers & Sons, Limited, Histon, Cambridge, " Wentworth Lion 23rd " (53,973).

CLASS 147. BOAR, born before 1927.—PREMIUMS, £8, £4, and £2.

1st No. 1074 Chivers & Sons, Limited, Histon, Cambridge, " Wentworth Lion 23rd " (53,973).
2nd No. 1077 Haig, Alastair N., Springfield Farm, Kinross, " Whittingham Jay 15th " (58,341).
3rd No. 1076 Elder, A. J., City Mills, Dunfermline, Fife, " Tockwith Jay 9th " (57,989).
V No. 1073 Aberdeen Royal Mental Hospital, Aberdeen, " Ashgrove King 129th " (59,987).

CLASS 148. BOAR, born in 1927.—PREMIUMS, £8, £4, and £2.

1st No. 1081 Cowper, John E. B., Gogar Mains, Corstorphine, " Gogar Cruden " (Ear No. 997).
2nd No. 1083 North of Scotland College of Agriculture, Craibstone Mains, Bucksburn, Aberdeen, " Craibstone Royal."
3rd No. 1084 Wallace, Captain A. A., Halbeath House, Dunfermline, Fife, " Gogar Major 4th " (60,873).

CLASS 149. BOAR, born in 1928.—PREMIUMS, £6, £3, and £1.

1st No. 1089 Rosebery Estates, Home Farm, Dalmeny House, Edinburgh (Ear No. 1516 A).
2nd No. 1085 Astor, Lady Violet, Meikleour Pig Herd, Blairgowrie, " Meikleour Duke."
3rd No. 1086 Cowper, John E. B., Gogar Mains, Corstorphine (Ear No. 1308).
V No. 1091 Wallace, Captain A. A., Halbeath House, Dunfermline, Fife (Ear No. 600).
H No. 1087 Jack, A., Brunstane Mills, Musselburgh (Ear No. 454).

Gold Medal, value £5, *for the best large White Sow in the Show*—given by the National Pig-Breeders' Association.

No. 1101 Cowper, John E. B., Gogar Mains, Corstorphine, " Gogar Lady Maggie " (Ear No. 877).

CLASS 150. SOW, born before 1927.—PREMIUMS, £8, £4, and £2.

1st	No. 1095	Cowper, John E. B., Gogar Mains, Corstorphine, "Gogar Mona 2nd" (158,304).
2nd	No. 1098	Leitch, Mrs P. A., Inchstelly, Alves, Forres, "Inchstelly Maggie 254th."
3rd	No. 1096	Elder, A. J., City Mills, Dunfermline, Fife, "Halbeath Jewel 3rd" (158,380).
V	No. 1097	Elder, A. J., City Mills, Dunfermline, Fife, "Tockwith Princess 45th."
H	No. 1093	Aberdeen Royal Mental Hospital, "Ashgrove Queen 144th."
C	No. 1094	Chivers & Sons, Limited, Histon, Cambridge, "Histon Mana 19th" (170,526).

CLASS 151. SOW, born in 1927.—PREMIUMS, £8, £4, and £2.

1st	No. 1101	Cowper, John E. B., Gogar, Mains, Corstorphine, "Gogar Lady Maggie" (Ear No. 877).
2nd	No. 1102	Cowper, John E. B., Gogar Mains, Corstorphine, "Gogar Jasamine" (Ear No. 888).
3rd	No. 1104	Jack, A., Brunstane Mills, Musselburgh, "Brunstane Countess 20th" (168,276).
V	No. 1100	Astor, Lady Violet, Meikleour Pig Herd, Blairgowrie, "Meikleour Choice."
H	No. 1103	Glentanar, Lord, Glen Tanar, Aboyne.

CLASS 152. SOW, born in 1928.—PREMIUMS, £6, £3, and £1.

1st	No. 1113	Rosebery Estates, Home Farm, Dalmeny House, Edinburgh (Ear No. 1522).
2nd	No. 1112	Rosebery Estates, Home Farm, Dalmeny House, Edinburgh (Ear No. 1520).
3rd	No. 1108	Elder, A. J., City Mills, Dunfermline, Fife (Ear No. 43).
V	No. 1109	Jack, A., Brunstane Mills, Musselburgh (Ear No. 468).
H	No. 1107	Astor, Lady Violet, Meikleour Pig Herd, Blairgowrie, "Meikleour Empress 2nd."
C	No. 1114	Wallace, Captain A. A., Halbeath House, Dunfermline, Fife (Ear No. 595).

MIDDLE WHITE.

PRESIDENT'S CHAMPION MEDAL for best Middle White Pig.

No. 1128 Chivers & Sons, Limited, Histon, Cambridge, "Histon Woodlands 6th."

Reserve—No. 1126 Smith-Sligo, Captain R. W., Inzievar, Oakley, Fife, "Inzievar Cressida" (118,372).

Gold Medal, value £5, *for the best Middle White Pig in the Show*—given by the National Pig-Breeders' Association.

No. 1128 Chivers & Sons, Limited, Histon, Cambridge, "Histon Woodlands 6th."

CLASS 153. BOAR, born before 1928.—PREMIUMS, £8, £4, and £2.

1st No. 1117 Chivers & Sons, Limited, Histon, Cambridge, " Histon Woodman 31st " (59,063).
2nd No. 1118 Gamlen, Dr H. E., 87 Jesmond Road, Newcastle-on-Tyne, " Wharfedale Baronet " (5166).
3rd No. 1116 Astor, Lady Violet, Meikleour Pig Herd, Blairgowrie, " Meikleour Squire."

CLASS 154. BOAR, born in 1928.—PREMIUMS, £6, £3, and £1.

1st No. 1120 Astor, Lady Violet, Meikleour Pig Herd, Blairgowrie, " Meikleour Beau 2nd."

CLASS 155. SOW, born before 1927.—PREMIUMS, £8, £4, and £2.

1st No. 1126 Smith-Sligo, Captain R. W., Inzievar, Oakley, Fife, " Inzievar Cressida " (118,372).
2nd No. 1123 Chivers & Sons, Limited, Histon, Cambridge, " Histon Lady Holly 13th " (137,578).
3rd No. 1124 Gamlen, Dr H. E., 87 Jesmond Road, Newcastle-on-Tyne, " Pullington Pamela " (122,628).
V No. 1125 Haig, Alastair N., Springfield Farm, Kinross, " Mistley Dorothy 94th " (164,786).
H No. 1122 Carlin Estates, Rutherford House, West Linton, Peeblesshire, " Dunmore Jane."

CLASS 156. SOW, born in 1927.—PREMIUMS, £8, £4, and £2.

1st No. 1128 Chivers & Sons, Limited, Histon, Cambridge, " Histon Woodlands 6th."
2nd No. 1129 Chivers & Sons, Limited, Histon, Cambridge, " Histon Woodlands 7th."
3rd No. 1130 Gamlen, Dr H. E., 87 Jesmond Road, Newcastle-on-Tyne, " Fordon Merrymaid" (Ear No. 6751).
V No. 1132 Smith-Sligo, Captain R. W., Inzievar, Oakley, Fife, " Inzievar Amazon 2nd."

CLASS 157. SOW, born in 1928.—PREMIUMS, £6, £3, and £1.

1st No. 1134 Smith-Sligo, Captain R. W., Inzievar, Oakley, Fife, " Inzievar Nymph 3rd."
2nd No. 1133 Astor, Lady Violet, Meikleour Pig Herd, Blairgowrie, " Meikleour Choice 2nd."

LARGE BLACK.

PRESIDENT'S CHAMPION MEDAL for best Large Black Pig.

No. 1146 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, " Yam Biddy 2nd " (D 196).
Reserve—No. 1136 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, " Baydon General 5th " (D 119).

Silver Challenge Cup, value 12 Guineas, *for best Large Black Boar or Sow owned by an Exhibitor resident in Scotland*—given by Large Black Pig Society.

No. 1146 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, "Yam Biddy 2nd" (D 196).

Silver Medal *for the best Large Black Boar*—given by Large Black Pig Society.

No. 1136 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, "Baydon General 5th" (D 119).

CLASS 158. BOAR, born before 1927.—PREMIUMS, £8, £4, and £2.

1st No. 1135 Walker, Colonel Robert W., Portlethen, Aberdeen, "Portlethen Colonel."

CLASS 159. BOAR, born in 1927.—PREMIUMS, £8, £4, and £2.

1st No. 1136 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, "Baydon General 5th" (D 119).

CLASS 160. BOAR, born in 1928.—PREMIUMS, £6, £3, and £1.

1st No. 1137 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, "Yam Eric."

Silver Medal *for the best Large Black Sow*—given by Large Black Pig Society.

No. 1146 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, "Yam Biddy 2nd" (D 196).

CLASS 161. SOW, born before 1927.—PREMIUMS, £8, £4, and £2.

1st No. 1139 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, "Yam Empress 2nd" (B 224).
2nd No. 1142 Walker, Colonel Robert W., Portlethen, Aberdeen, "Portlethen Corrine" (B 4074).

CLASS 162. SOW, born in 1927.—PREMIUMS, £8, £4, and £2.

1st No. 1146 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, "Yam Biddy 2nd" (D 196).
2nd No. 1145 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, "Yam Biddy 1st" (D 194).
3rd No. 1147 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, "Yam Biddy 3rd."

CLASS 163. SOW, born in 1928.—PREMIUMS, £6, £3, and £1.

1st No. 1149 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, "Yam Eliza 18th."
2nd No. 1150 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, "Yam Erica 1st."
3rd No. 1151 M'Caig & Goodchild, Foreside of Cairn, Kirriemuir, "Yam Erica 2nd."

LARGE WHITE ULSTER.

PRESIDENT'S CHAMPION MEDAL for best Large White Ulster Pig.

CLASS 164. BOAR, born before 1928.—PREMIUMS, £8, £4, and £2.

(No Entry.)

CLASS 165. BOAR, born in 1928.—PREMIUMS, £6, £3, and £1.

(No Entry.)

CLASS 166. SOW, born before 1928.—PREMIUMS, £8, £4, and £2.

(No Entry.)

CLASS 167. SOW, born in 1928.—PREMIUMS, £6, £3, and £1.

(No Entry.)

POULTRY

First Premium—*One Sovereign.* Second Premium—*Ten Shillings.* Where there are four or more entries, a Third Premium—*Five Shillings.*

Champion Challenge Bowl, value £50, *for the best exhibit in the Poultry Classes*—given by the Proprietors of 'The Scottish Poultry News,' Aberdeen.

No. 118 Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.

CHAMPION MEDALS.

1. *Best Cock, any Variety.*

No. 118 Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.

2. *Best Hen, any Variety.*

No. 372 Laidler, James, Eastview, 112 Glasgow Road, Paisley.

3. *Best Cockerel, any Variety.*

No. 153 Morgan, William, Balcurvie, Windygates.

4. *Best Pullet, any Variety.*

No. 318 Rogers, James, Forneth, Blairgowrie.

5. *Best Waterfowl.*

No. 529 Argo, Fred, Bructor, Inverurie.

6. *Best Turkey.*

No. 551 Smith, Miss Ina, Upper Kirkton, Barthol Chapel, Oldmeldrum.

CLASS 1. LEGHORN—White—Cock.

1st No. 1 Binnie, W., Garth House, Denny.
2nd No. 4 Weir, James, Brickhouse, New Abbey Road, Dumfries.
3rd No. 3 Weir, James, Brickhouse, New Abbey Road, Dumfries.
C No. 2 Glenross, R., & Son, Largo Cottage, Glencraig, Fife.

CLASS 2. LEGHORN—White—Hen.

1st No. 10 Weir, James, Brickhouse, New Abbey Road, Dumfries.
2nd No. 5 Binnie, W., Garth House, Denny.
3rd No. 9 Weir, James, Brickhouse, New Abbey Road, Dumfries.
V No. 6 Ferries, Robert, Harthill, Countesswells, Aberdeen.

CLASS 3. LEGHORN—White—Cockerel.

1st No. 14 Weir, James, Brickhouse, New Abbey Road, Dumfries.
2nd No. 13 Weir, James, Brickhouse, New Abbey Road, Dumfries.
3rd No. 11 Binnie, W., Garth House, Denny.
C No. 12 Glenross, R., & Son, Largo Cottage, Glencraig, Fife.

CLASS 4. LEGHORN—White—Pullet.

1st	No. 15	Binnie, W., Garth House, Denny.
2nd	No. 18	Weir, James, Brickhouse, New Abbey Road, Dumfries.
3rd	No. 17	Weir, James, Brickhouse, New Abbey Road, Dumfries.

CLASS 5. LEGHORN—Exchequer—Cock or Cockerel.

1st	No. 19	Nairn, P. D., Hillcrest, St Ninians, Stirling (Cock).

CLASS 6. LEGHORN—Exchequer—Hen or Pullet.

1st	No. 21	Nairn, P. D., Hillcrest, St Ninians, Stirling (Hen).
2nd	No. 20	Brownlie, Andrew Goodsburn, Strathaven (Hen).

CLASS 7. LEGHORN—Any other Colour—Cock.

1st	No. 26	Ferries, Robert, Harthill, Countesswells, Aberdeen (Brown).
2nd	No. 27	M'Pherson, Robert, Drumboy, Darvel (Brown).
3rd	No. 24	Durward, Robert, Bootmaker, Dunecht, Aberdeenshire (Brown).
V	No. 23	Brown, Charles, Ivybank, Kintore (Brown).
H	No. 28	Manson, William, 61 Whitehall, Maybole (Brown).

CLASS 8. LEGHORN—Any other Colour—Hen.

1st	No. 36	Rutherford, A., & Son, 3 Parliament Square, Kinross (Black).
2nd	No. 30	Brown, Charles, Ivybank, Kintore (Brown).
3rd	No. 29	Binnie, W., Garth House, Denny (Black).
V	No. 31	Durward, Robert, Bootmaker, Dunecht, Aberdeenshire (Brown).
H	No. 35	Mealls, David, 15 Shanks Terrace, Dunipace, Denny (Brown).
C	No. 32	Ferries, Robert, Harthill, Countesswells, Aberdeen (Brown).

CLASS 9. LEGHORN—Any other Colour—Cockerel.

1st	No. 40	Ferries, Robert, Harthill, Countesswells, Aberdeen (Brown).
2nd	No. 39	Ferries, Robert, Harthill, Countesswells, Aberdeen (Brown).
3rd	No. 38	Durward, Robert, Bootmaker, Dunecht, Aberdeenshire (Brown).
V	No. 37	Brown, Charles, Ivybank, Kintore (Brown).

CLASS 10. LEGHORN—Any other Colour—Pullet.

1st	No. 41	Durward, Robert, Bootmaker, Dunecht, Aberdeenshire (Brown).
2nd	No. 45	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream (Black).
3rd	No. 43	Ferries, Robert, Harthill, Countesswells, Aberdeen (Brown).
V	No. 44	Ferries, Robert, Harthill, Countesswells, Aberdeen (Brown).
H	No. 42	Durward, Robert, Bootmaker, Dunecht, Aberdeenshire (Brown).

CLASS 11. MINORCA—Cock.

1st	No. 49	Weir, James, Brickhouse, New Abbey Road, Dumfries.
2nd	No. 46	Binnie, W., Garth House, Denny.
3rd	No. 47	Binnie, W., Garth House, Denny.
V	No. 48	Milne, George, The Cross, Whitburn.

CLASS 12. MINORCA—Hen.

1st	No. 51	Binnie, W., Garth House, Denny.
2nd	No. 56	Weir, James, Brickhouse, New Abbey Road, Dumfries.
3rd	No. 52	Binnie, W., Garth House, Denny.
V	No. 53	Dalrymple, John, & Son, Meadow View, Leslie.
C	No. 50	Argo, Fred, Bructor, Inverurie.

CLASS 13. MINORCA—Cockerel.

1st	No. 58	Binnie, W., Garth House, Denny.
2nd	No. 59	Macgregor, James Scott, Bridgend Bakery, Greenlaw.
V	No. 57	Binnie, W., Garth House, Denny.

CLASS 14. MINORCA—Pullet.

1st	No. 60	Binnie, W., Garth House, Denny.
2nd	No. 62	Macgregor, James Scott, Bridgend Bakery, Greenlaw.
V	No. 61	Binnie, W., Garth House, Denny.

CLASS 15. HAMBURGH—Cock.

1st	No. 65	Milligan, W., Mill Murray, East Kilbride.
2nd	No. 63	Forsyth, John F., Clackmannan.
V	No. 64	Forsyth, John F., Clackmannan.

CLASS 16. HAMBURGH—Hen.

1st	No. 66	Forsyth, John F., Clackmannan.
2nd	No. 68	Hilston, James S., 38 Kirk Street, Strathaven.
3rd	No. 67	Forsyth, John F., Clackmannan.
V	No. 69	Milligan, W., Mill Murray, East Kilbride.

CLASS 17. HAMBURGH—Cockerel.

1st	No. 70	Forsyth, John F., Clackmannan.
2nd	No. 71	Milligan, W., Mill Murray, East Kilbride.

CLASS 18. HAMBURGH—Pullet.

1st	No. 72	Forsyth, John F., Clackmannan.
2nd	No. 73	Milligan, W., Mill Murray, East Kilbride.

CLASS 19. SCOTCH GREY—Cock.

1st	No. 77	Ramsay, William, Muirhouse Cottage, Crosshouse.
2nd	No. 74	Carswell, John, 148 Graham's Road, Falkirk.
3rd	No. 76	Ramsay, William, Muirhouse Cottage, Crosshouse.
V	No. 75	Hearnshaw, R. Fletcher, Foxhill, Burton Joyce, Nottingham.

CLASS 20. SCOTCH GREY—Hen.

1st	No. 80	Ramsay, William, Muirhouse Cottage, Crosshouse.
2nd	No. 83	Retson, J. M., Mouse Mill, Lanark.
3rd	No. 78	Carswell, John, 148 Graham's Road, Falkirk.
V	No. 82	Retson, J. M., Mouse Mill, Lanark.
H	No. 81	Ramsay, William, Muirhouse Cottage, Crosshouse.
C	No. 79	Hearnshaw, R. Fletcher, Foxhill, Burton Joyce, Nottingham.

CLASS 21. SCOTCH GREY—Cockerel.

1st	No. 84	Ramsay, William, Muirhouse Cottage, Crosshouse.
2nd	No. 85	Ramsay, William, Muirhouse Cottage, Crosshouse.

CLASS 22. SCOTCH GREY—Pullet.

1st No. 87 Ramsay, William, Muirhouse Cottage, Crosshouse.
2nd No. 86 Ramsay, William, Muirhouse Cottage, Crosshouse.

CLASS 23. PLYMOUTH ROCK—Barred—Cock.

1st No. 92 Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
2nd No. 91 Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
3rd No. 88 Courage, Robert G., 60 Carden Place, Aberdeen.
V No. 90 Kerr, William, Lytle Park, Jackton, East Kilbride.
H No. 89 Kerr, William, Lytle Park, Jackton, East Kilbride.
C No. 93 Wilkie, John, Orr Bridge Poultry Farm, Dysart.

CLASS 24. PLYMOUTH ROCK—Barred—Hen.

1st No. 97 Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
2nd No. 98 Logan, James, Lauder Place, East Linton.
3rd No. 96 Kerr, William, Lytle Park, Jackton, East Kilbride.
V No. 99 Wilkie, John, Orr Bridge Poultry Farm, Dysart.

CLASS 25. PLYMOUTH ROCK—Barred—Cockerel.

1st No. 100 Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
2nd No. 101 Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.

CLASS 26. PLYMOUTH ROCK—Barred—Pullet.

1st No. 103 Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
2nd No. 104 Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
3rd No. 105 Wilkie, John, Orr Bridge Poultry Farm, Dysart.

CLASS 27. PLYMOUTH ROCK—Any other Colour—Cock or Cockerel.

1st No. 107 Dewar, The Hon. Irene, Dupplin Castle, Perth (Cock, Buff).
2nd No. 106 Argo, Fred, Bructor, Inverurie (Cock, White).
V No. 108 Murdoch, John, West Park Huntly (Cock, White).

CLASS 28. PLYMOUTH ROCK—Any other Colour—Hen or Pullet.

1st No. 110 Murdoch, John, West Park, Huntly (Hen, White).
2nd No. 109 Horn, Miss M. C., Woodcote Park, Blackshiels (Pullet, Buff).

CLASS 29. ORPINGTON—Black—Cock.

1st No. 111 Kirkwood, Robert Arthur, Camelon Hotel, Falkirk.
2nd No. 112 Rottenburg, F. A., Lochlane, Crieff.

CLASS 30. ORPINGTON—Black—Hen.

1st No. 114 Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
2nd No. 115 Morgan, William, Balcurvie, Windygates.
3rd No. 113 Chrystal, John, Inverboyndie, Banff.

CLASS 31. ORPINGTON—Any other Colour—Cock.

1st No. 118 Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
2nd No. 117 Kirkwood, Robert Arthur, Camelon Hotel, Falkirk (Buff).
V No. 119 Shewan, Alexander, South Percyhorner, Fraserburgh (Buff).

CLASS 32. ORPINGTON—Any other Colour—Hen.

1st	No. 121	Shewan, Alexander, South Percyhorner, Fraserburgh (Buff).
2nd	No. 120	Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie (Buff).

CLASS 33. ORPINGTON—Any Colour—Cockerel.

1st	No. 123	Shewan, Alexander, South Percyhorner, Fraserburgh (Buff).
2nd	No. 122	Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie (Buff).

CLASS 34. ORPINGTON—Any Colour—Pullet.

1st	No. 125	Shewan, Alexander, South Percyhorner, Fraserburgh (Buff).
2nd	No. 124	Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie (Buff).

CLASS 35. WYANDOTTE—Gold or Silver—Cock.

1st	No. 126	Morgan, William, Balcurvie, Windygates (Gold).
2nd	No. 129	Philipson, J. M., Wyandotte Farm, Gilsland, Carlisle (Silver).
3rd	No. 127	Morgan, William, Balcurvie, Windygates (Gold).

CLASS 36. WYANDOTTE—Gold or Silver—Hen.

1st	No. 133	Morgan, William, Balcurvie, Windygates (Silver).
2nd	No. 131	Lamberton, James, Kirkcudbright Farm, Moniaive (Silver).
3rd	No. 132	Morgan, William, Balcurvie, Windygates (Gold).
V	No. 130	Chrystal, John, Inverboyndie, Banff (Gold).

CLASS 37. WYANDOTTE—Gold or Silver—Cockerel.

1st	No. 136	Richardson, William, 13 Bootham Crescent, York (Gold).
2nd	No. 134	Petticrew, James, Springhill, Strone, Argyllshire (Gold).
V	No. 135	Philipson, J. M., Wyandotte Farm, Gilsland, Carlisle (Silver).

CLASS 38. WYANDOTTE—Gold or Silver—Pullet.

1st	No. 138	Philipson, J. M., Wyandotte Farm, Gilsland, Carlisle (Gold).
2nd	No. 137	Morgan, William, Balcurvie, Windygates (Gold).

CLASS 39. WYANDOTTE—White—Cock.

1st	No. 143	Weir, John, Midtown, New Abbey Road, Dumfries.
2nd	No. 142	Binnie, W., Garth House, Denny.
3rd	No. 140	Adamson, Fred, Blinkhoolie, Kinross.

CLASS 40. WYANDOTTE—White—Hen.

1st	No. 147	Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
2nd	No. 146	Binnie, W., Garth House, Denny.
3rd	No. 148	Weir, John, Midtown, New Abbey Road, Dumfries.
V	No. 145	Adamson, Fred, Blinkhoolie, Kinross.

CLASS 41. WYANDOTTE—White—Cockerel.

1st	No. 153	Morgan, William, Balcurvie, Windygates.
2nd	No. 149	Binnie, W., Garth House, Denny.
3rd	No. 151	Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
V	No. 152	Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
H	No. 156	Weir, John, Midtown, New Abbey Road, Dumfries.
C	No. 150	Lawson, Andrew, Golf Club House, Biggar.

CLASS 42. WYANDOTTE—White—Pullet.

1st	No. 158	Binnie, W., Garth House, Denny.
2nd	No. 161	Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
3rd	No. 163	Weir, John, Midtown, New Abbey Road, Dumfries.
V	No. 159	Lawson, Andrew, Golf Club House, Biggar.
H	No. 160	Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.

CLASS 43. WYANDOTTE—Partridge—Cock or Cockerel.

1st	No. 167	Brown, Charles, Ivybank, Kintore (Cock).
2nd	No. 165	Argo, Fred, Bructor, Inverurie (Cock).
3rd	No. 164	Argo, Fred, Bructor, Inverurie (Cock).
V	No. 166	Brown, Charles, Ivybank, Kintore (Cock).

CLASS 44. WYANDOTTE—Partridge—Hen or Pullet.

1st	No. 169	Brown, Charles, Ivybank, Kintore (Hen).
2nd	No. 168	Argo, Fred, Bructor, Inverurie (Hen).

CLASS 45. WYANDOTTE—Columbian—Cock or Cockerel.

1st	No. 171	Dickinson, J., & Son, The Milestone, Milton Road, Cambridge (Cock).
2nd	No. 172	Parker, Miss M. S., Craigmaddie, Milngavie (Cock).
3rd	No. 173	Parker, Miss M. S., Craigmaddie, Milngavie (Cock).
V	No. 174	Parker, Miss M. S., Craigmaddie, Milngavie (Cockerel).
H	No. 170	Cocks, John F., Ware Park, Ware, Herts. (Cockerel).

CLASS 46. WYANDOTTE—Columbian—Hen or Pullet.

1st	No. 178	Parker, Miss M. S., Craigmaddie, Milngavie (Pullet).
2nd	No. 176	Dickinson, J., & Son, The Milestone, Milton Road, Cambridge (Hen).
V	No. 177	Parker, Miss M. S., Craigmaddie, Milngavie (Hen).
H	No. 175	Cocks, John F., Ware Park, Ware, Herts. (Pullet).

CLASS 47. WYANDOTTE—Any other Colour—Cock or Cockerel.

1st	No. 179	Hay, J. D., Glenearn, Bridge of Earn (Cock, Black).
2nd	No. 180	Tocher, Charles, Balmore, Clunas, Nairn (Cockerel, Black).

CLASS 48. WYANDOTTE—Any other Colour—Hen or Pullet.

1st	No. 184	Tocher, Charles, Balmore, Clunas, Nairn (Hen, Black).
2nd	No. 185	Wilson, Andrew, Jun., Springbank Cottage, Lanark (Hen, Black)
3rd	No. 181	Argo, Fred, Bructor, Inverurie (Hen, Black).
V	No. 183	Sutherland, J. N., Bank Lane, Forres (Hen, Black).

CLASS 49. RHODE ISLAND RED—Cock.

1st	No. 186	Brown, Charles, Ivybank, Kintore.
2nd	No. 195	Morgan, William, Balcurvie, Windygates.
3rd	No. 187	Campbell, Mrs, Blackhill Farm, Maryhill, Glasgow.
V	No. 188	Carmichael, J. & D., 39 Belstane Road, Carluke.
H	No. 194	Meek, Robert, Whitburn.
C	No. 189	Carmichael, J. & D., 39 Belstane Road, Carluke.
C	No. 197	Robertson, John, Craigend, Dundas Castle, South Queensferry.

CLASS 50. RHODE ISLAND RED—Hen.

1st	No. 203	Robertson, John, Craigend, Dundas Castle, South Queensferry.
2nd	No. 204	Robertson, John, Craigend, Dundas Castle, South Queensferry.
3rd	No. 202	Morgan, William, Balcurvie, Windygates.
V	No. 200	Carmichael, J. & D., 39 Belstane Road, Carluke.
H	No. 198	Brown, Charles, Ivybank, Kintore.

CLASS 51. RHODE ISLAND RED—Cockerel.

1st	No. 207	Campbell, Mrs, Blackhill Farm, Maryhill, Glasgow.
2nd	No. 209	Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
3rd	No. 210	Petrie, Alexander, Mayfield, Airth Station, Falkirk.
V	No. 206	Brown, Charles, Ivybank, Kintore.
H	No. 205	Brodie, Mrs, Lethen, Nairn.

CLASS 52. RHODE ISLAND RED—Pullet.

1st	No. 214	Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
2nd	No. 217	Petrie, Alexander, Mayfield, Airth Station, Falkirk.
3rd	No. 220	Robertson, John, Craigend, Dundas Castle, South Queensferry.
V	No. 213	Henderson, J. Milne, 15 Merchiston Park, Edinburgh.
H	No. 218	Petrie, Alexander, Mayfield, Airth Station, Falkirk.
C	No. 215	Malcolm, Maurice, Boromeadow, Stirling.
C	No. 219	Robertson, John, Craigend, Dundas Castle, South Queensferry.

CLASS 53. SUSSEX—Light—Cock.

1st	No. 225	Morgan, William, Balcurvie, Windygates.
2nd	No. 229	Wilkie, John, Orr Bridge Poultry Farm, Dysart.
3rd	No. 230	Younger, W. R., Auchen Castle, Moffat.
V	No. 224	Logan, James, Lauder Place, East Linton.
H	No. 221	Adamson, Fred, Blinkhoolie, Kinross.
C	No. 228	Smith, Miss Ina, Upper Kirkton, Barthol Chapel, Oldmeldrum.

CLASS 54. SUSSEX—Light—Hen.

1st	No. 234	Grant, Mrs M. A., Kirby Hall, Horton Kirby, Kent.
2nd	No. 241	Wilkie, John, Orr Bridge Poultry Farm, Dysart.
3rd	No. 238	Morgan, William, Balcurvie, Windygates.
V	No. 237	MacDonald, James, Dumella House, Findhorn, Forres.
H	No. 242	Younger, W. R., Auchen Castle, Moffat.
C	No. 236	MacDonald, James, Dumella House, Findhorn, Forres.

CLASS 55. SUSSEX—Light—Cockerel.

1st	No. 251	Wilkie, John, Orr Bridge Poultry Farm, Dysart.
2nd	No. 252	Younger, W. R., Auchen Castle, Moffat.
3rd	No. 244	Grant, Mrs M. A., Kirby Hall, Horton Kirby, Kent.
V	No. 245	Richardson, Messrs, Courstein, Lockerbie.
H	No. 243	Fletcher, Captain A. M. Talbot, of Saltoun, Saltoun Hall, Pencaitland, East Lothian.
C	No. 247	Smith, Miss Ina, Upper Kirkton, Barthol Chapel, Oldmeldrum.

CLASS 56. SUSSEX—Light—Pullet.

1st	No. 253	Grant, Mrs M. A., Kirby Hall, Horton Kirby, Kent.
2nd	No. 262	Younger, W. R., Auchen Castle, Moffat.
3rd	No. 261	Younger, W. R., Auchen Castle, Moffat.
V	No. 254	Leith, The Hon. Lady Forbes, of Fyvie, Fyvie Castle, Fyvie.
H	No. 260	Wilkie, John, Orr Bridge Poultry Farm, Dysart.
C	No. 256	Richardson, Messrs, Courstein, Lockerbie.

CLASS 57. SUSSEX—Any other Variety—Cock.

1st	No. 263	Grant, Mrs M. A., Kirby Hall, Horton Kirby, Kent (Speckled).
2nd	No. 264	Grant, Mrs M. A., Kirby Hall, Horton Kirby, Kent (Brown).
3rd	No. 268	Wilkie, John, Orr Bridge Poultry Farm, Dysart (Speckled).
V	No. 269	Younger, W. R., Auchen Castle, Moffat (Brown).
H	No. 267	Tewnion, William J., Milltown, Rothiemay (Speckled).

CLASS 58. SUSSEX—Any other Variety—Hen.

1st	No. 274	Kirkwood, Robert Arthur, Camelon Hotel, Falkirk (Speckled).
2nd	No. 276	Tewnion, William J., Milltown, Rothiemay (Speckled).
3rd	No. 270	Grant, Mrs M. A., Kirby Hall, Horton Kirby, Kent (Red).
V	No. 271	Grant, Mrs M. A., Kirby Hall, Horton Kirby, Kent (Brown).
H	No. 278	Wilkie, John, Orr Bridge Poultry Farm, Dysart (Speckled).
C	No. 275	Petrie, Alexander, Mayfield, Airth Station, Falkirk (Buff).

CLASS 59. SUSSEX—Any other Variety—Cockerel.

1st	No. 280	Grant, Mrs M. A., Kirby Hall, Horton Kirby, Kent (Brown).
2nd	No. 279	Grant, Mrs M. A., Kirby Hall, Horton Kirby, Kent (Speckled).
3rd	No. 283	Younger, W. R., Auchen Castle, Moffat (Speckled).
V	No. 282	Wilson, George, 16 Dalziel Place, Edinburgh (White).

CLASS 60. SUSSEX—Any other Variety—Pullet.

1st	No. 288	Younger, W. R., Auchen Castle, Moffat (Speckled).
2nd	No. 284	Grant, Mrs M. A., Kirby Hall, Horton Kirby, Kent (Speckled).
3rd	No. 285	Grant, Mrs M. A., Kirby Hall, Horton Kirby, Kent (Brown).
V	No. 287	Wilson, George, 16 Dalziel Place, Edinburgh (White).

CLASS 61. DORKING—Coloured—Cock.

1st	No. 291	Stewart, John, 14 Montgomerie Street, Girvan.
2nd	No. 290	Rogers, James, Forneth, Blairgowrie.

CLASS 62. DORKING—Coloured—Hen.

1st	No. 293	Mechie, John, Upper Greens, Auchtermuchty.

CLASS 63. DORKING—Coloured—Cockerel.

(*Not forward.*)

CLASS 64. DORKING—Coloured—Pullet.

(*Not forward.*)

CLASS 65. DORKING—Silver Grey—Cock.

1st	No. 301	Mechie, John, Upper Greens, Auchtermuchty.
2nd	No. 302	Rogers, James, Forneth, Blairgowrie.
3rd	No. 300	Mechie, John, Upper Greens, Auchtermuchty.
V	No. 297	Cruickshank, Alexander, West Leys, Lessendrum, Huntly.
H	No. 298	Macintyre, John, Broombank, Blanefield.

CLASS 66. DORKING—Silver Grey—Hen.

1st	No. 307	Richardson, Messrs, Courstein, Lockerbie.
2nd	No. 305	Mechie, John, Upper Greens, Auchtermuchty.
3rd	No. 306	Mechie, John, Upper Greens, Auchtermuchty.
V	No. 303	Cruickshank, A., Cruichie Croft, Drumblade, Huntly.

CLASS 67. DORKING—Silver Grey—Cockerel.

1st	No. 312	Mechie, John, Upper Greens, Auchtermuchty.
2nd	No. 311	Mechie, John, Upper Greens, Auchtermuchty.
3rd	No. 313	Rogers, James, Forneth, Blairgowrie.
V	No. 309	Cruickshank, A., Cruichie Croft, Drumblade, Huntly.

CLASS 68. DORKING—Silver Grey—Pullet.

1st	No. 318	Rogers, James, Forneth, Blairgowrie.
2nd	No. 317	Mechie, John, Upper Greens, Auchtermuchty.
3rd	No. 316	Mechie, John, Upper Greens, Auchtermuchty.

CLASS 69. SCOTS DUMPY—Cock.

1st	No. 322	Kerr, J. E., of Harviestoun, Dollar.
2nd	No. 321	Kerr, J. E., of Harviestoun, Dollar.
3rd	No. 320	Kerr, J. E., of Harviestoun, Dollar.
V	No. 319	Anderson, F., Abbotshall, Milnathort.

CLASS 70. SCOTS DUMPY—Hen.

1st	No. 328	Kerr, J. E., of Harviestoun, Dollar.
2nd	No. 326	Kerr, J. E., of Harviestoun, Dollar.
3rd	No. 327	Kerr, J. E., of Harviestoun, Dollar.
V	No. 325	Brown, J. W., Rosehill, Summerston, Glasgow.
H	No. 324	Anderson, F., Abbotshall, Milnathort.

CLASS 71. SCOTS DUMPY—Cockerel.

1st	No. 330	Kerr, J. E., of Harviestoun, Dollar.

CLASS 72. SCOTS DUMPY—Pullet.

1st	No. 334	Kerr, J. E., of Harviestoun, Dollar.
2nd	No. 332	Brown, J. W., Rosehill, Summerston, Glasgow.
3rd	No. 335	Kerr, J. E., of Harviestoun, Dollar.
V	No. 333	Brown, J. W., Rosehill, Summerston, Glasgow.

CLASS 73. INDIAN GAME—Cock.

1st	No. 338	Pettigrew, John, Moss View, Dalmellington.
2nd	No. 336	Malcolm, Maurice, Boromeadow, Stirling.
V	No. 337	Malcolm, Maurice, Boromeadow, Stirling.

CLASS 74. INDIAN GAME—Hen.

1st	No. 339	Malcolm, Maurice, Boromeadow, Stirling.
2nd	No. 342	Pettigrew, John, Moss View, Dalmellington.
3rd	No. 340	Malcolm, Maurice, Boromeadow, Stirling.
V	No. 341	Malcolm, Maurice, Boromeadow, Stirling.

CLASS 75. INDIAN GAME—Cockerel.

1st	No. 344	Malcolm, Maurice, Boromeadow, Stirling.
2nd	No. 343	Ellwood, Joseph W., Papcastle, Cockermouth.

CLASS 76. INDIAN GAME—Pullet.

1st	No. 345	Malcolm, Maurice, Boromeadow, Stirling.

CLASS 77. OLD ENGLISH GAME—Cock.

1st	No. 348	Laidler, James, Eastview, 112 Glasgow Road, Paisley.
2nd	No. 349	Reed, William Graham, Low Cote Hill Farm, Carlisle.
3rd	No. 347	Hutt, John, Denend, Cardenden.
V	No. 346	Duncan, James, Station Road, Woodside, Aberdeen.

CLASS 78. OLD ENGLISH GAME—Hen.

1st	No. 351	Laidler, James, Eastview, 112 Glasgow Road, Paisley.
2nd	No. 350	Hutt, John, Denend, Cardenden.
3rd	No. 352	Reed, William Graham, Low Cote Hill Farm, Carlisle.
V	No. 353	Russell, H. N. & H. T., Newton Holme, Kirkbride, Carlisle.

CLASS 79. OLD ENGLISH GAME—Cockerel.

1st	No. 355	Russell, H. N. & H. T., Newton Holme, Kirkbride, Carlisle.
2nd	No. 354	Reed, William Graham, Low Cote Hill Farm, Carlisle.

CLASS 80. OLD ENGLISH GAME—Pullet.

1st	No. 358	Russell, H. N. & H. T., Newton Holme, Kirkbride, Carlisle.
2nd	No. 357	Reed, William Graham, Low Cote Hill Farm, Carlisle.
V	No. 356	Hutt, John, Denend, Cardenden.

CLASS 81. BANTAM GAME—Old English—Cock.

1st	No. 363	Morgan, William, Balcurvie, Windygates.
2nd	No. 362	Laidler, James, Eastview, 112 Glasgow Road, Paisley.
3rd	No. 365	Sharp & Co., 27 Forest Road, Townhill, Dunfermline.
V	No. 361	Hutt, John, Denend, Cardenden.
H	No. 366	Sharp & Co., 27 Forest Road, Townhill, Dunfermline.
C	No. 359	Courage, Robert G., 60 Carden Place, Aberdeen.
C	No. 360	Hay, J. D., Glenearn, Bridge of Earn.
C	No. 367	Stillie, C. & W., 19 Ettrick Road, Selkirk.

CLASS 82. BANTAM GAME—Old English—Hen.

1st	No. 372	Laidler, James, Eastview, 112 Glasgow Road, Paisley.
2nd	No. 373	Morgan, William, Balcurvie, Windygates.
3rd	No. 376	Sharp & Co., 27 Forest Road, Townhill, Dunfermline.
V	No. 371	Hutt, John, Denend, Cardenden.
H	No. 370	Hay, J. D., Glenearn, Bridge of Earn.
C	No. 369	Ellwood, Joseph W., Papcastle, Cockermouth.
C	No. 375	Sharp & Co., 27 Forest Road, Townhill, Dunfermline.

CLASS 83. BANTAM GAME—Modern—Cock.

1st	No. 381	White, George, County Buildings, Cupar, Fife.
2nd	No. 377	Duncan, James, Station Road, Woodside, Aberdeen.
3rd	No. 378	Sandison, Alfred, The Bakery, Echt, Aberdeenshire.
V	No. 380	Sandison, Alfred, The Bakery, Echt, Aberdeenshire.
H	No. 379	Sandison, Alfred, The Bakery, Echt, Aberdeenshire.

CLASS 84. BANTAM GAME—Modern—Hen.

1st	No. 386	White, George, County Buildings, Cupar, Fife.
2nd	No. 382	Sandison, Alfred, The Bakery, Echt, Aberdeenshire.
3rd	No. 384	Sandison, Alfred, The Bakery, Echt, Aberdeenshire.
V	No. 385	Sandison, Alfred, The Bakery, Echt, Aberdeenshire.
H	No. 383	Sandison, Alfred, The Bakery, Echt, Aberdeenshire.

CLASS 85. BANTAM—Other than Game—Cock.

1st No. 387 Binnie, W., Garth House, Denny (Wyandotte, White).
2nd No. 393 Laidler, James, Eastview, 112 Glasgow Road, Paisley (Belgian, Black).
3rd No. 392 Kirkwood, Robert Arthur, Camelon Hotel, Falkirk (Pekin, Black).
V No. 390 Hay, J. D., Glenearn, Bridge of Earn (Wyandotte, Black).
H No. 391 Hearnshaw, R. Fletcher, Fox Hill, Burton Joyce, Nottingham (Barbue d'Anvers).
C No. 388 Buchanan, John, Nerston, East Kilbride (Rosecomb, Black).
C No. 394 Macintyre, John, Broombank, Blanefield (Indian Game).

CLASS 86. BANTAM—Other than Game—Hen.

1st No. 398 Hay, J. D., Glenearn, Bridge of Earn (Wyandotte, Black).
2nd No. 401 Laidler, James, Eastview, 112 Glasgow Road, Paisley (Belgian, Black).
3rd No. 400 Kirkwood, Robert Arthur, Camelon Hotel, Falkirk (Pekin, Black).
V No. 395 Binnie, W., Garth House, Denny (Wyandotte, White).
H No. 396 Buchanan, John, Nerston, East Kilbride (Rosecomb, Black).
C No. 397 Duncan, James, Station Road, Woodside, Aberdeen (Rosecomb, Black).
C No. 399 Hearnshaw, R. Fletcher, Fox Hill, Burton Joyce, Nottingham (Barbue d'Anvers).

CLASS 87. BANTAM—Any Variety—Cockerel.

1st No. 404 Delaney, James, Old Town, Gateside, Fife (Modern Game).
2nd No. 402 Binnie, W., Garth House, Denny (Wyandotte, White).
3rd No. 406 Sandison, Alfred, The Bakery, Echt, Aberdeenshire (Modern Game).
V No. 407 Shewan, Alexander, South Percyhorner, Fraserburgh (Wyandotte, White).
H No. 405 Ellwood, Joseph W., Papcastle, Cockermouth (Old English Game).

CLASS 88. BANTAM—Any Variety—Pullet.

1st No. 412 Delaney, James, Old Town, Gateside, Fife (Modern Game).
2nd No. 411 Dalgleish, James P., of Westgrange, Bogside Station, Alloa (Sussex, Light).
3rd No. 414 Sandison, Alfred, The Bakery, Echt, Aberdeenshire (Modern Game).
V No. 415 Shewan, Alexander, South Percyhorner, Fraserburgh (Wyandotte, White).
H No. 408 Binnie, W., Garth House, Denny (Wyandotte, White).
C No. 409 Buchanan, John, Nerston, East Kilbride (Rosecomb, Black).
C No. 413 Ellwood, Joseph W., Papcastle, Cockermouth (Old English Game).

CLASS 89. ANY OTHER RECOGNISED BREED—Cock.

1st No. 416 Cathcart, Colonel J. T., Pitcairlie, Newburgh, Fife (Dorking, Red).
2nd No. 423 Kirkwood, Robert Arthur, Camelon Hotel, Falkirk (Brahma, Light).
3rd No. 425 Morison, Captain A. E. F., Mountblairy, Turriff (Australorp, Black).
V No. 426 Sandison, Alfred, The Bakery, Echt, Aberdeenshire (Modern Game).
H No. 417 Elder, Thomas, Jun., Links Road, Longniddry (Barnvelder).
C No. 422 Guy, Robert, Caldermuir Cottage, 2 Johnson Drive, Cambuslang (Poland, Black).

CLASS 90. ANY OTHER RECOGNISED BREED—Hen.

1st	No. 435	Mechie, John, Upper Greens, Auchtermuchty (Cochin, Buff).
2nd	No. 428	Black, William, Gibson Street, Carnoustie (Houdan, Black and White).
3rd	No. 427	Argo, Fred, Bructor, Inverurie (Brahma, Light).
V	No. 429	Cathcart, Colonel J. T., Pitcairlie, Newburgh, Fife (Dorking, Red).
H	No. 437	Sandison, Alfred, The Bakery, Echt, Aberdeenshire (Modern Game).
C	No. 430	Elder, Thomas, Jun., Links Road, Longniddry (Barnvelder).
C	No. 432	Guy, Robert, Caldermuir Cottage, 2 Johnson Drive, Cambuslang (Poland, Black).
C	No. 433	Hay, J. D., Glenearn, Bridge of Earn (Silkie, White).

CLASS 91. ANY OTHER RECOGNISED BREED—Cockerel.

1st	No. 439	Morgan, William, Balcurvie, Windygates (Barnvelder, Laced).
2nd	No. 438	Cathcart, Colonel J. T., Pitcairlie, Newburgh, Fife (Dorking, Red).
V	No. 440	Sandison, Alfred, The Bakery, Echt, Aberdeenshire (Modern Game).

CLASS 92. ANY OTHER RECOGNISED BREED—Pullet.

1st	No. 441	Cathcart, Colonel J. T., Pitcairlie, Newburgh, Fife (Dorking, Red).
2nd	No. 442	Sandison, Alfred, The Bakery, Echt, Aberdeenshire (Modern Game).

CLASS 93. PURE-BRED FOWLS FOR LAYING PURPOSES—Any Heavy Breed—Hen or Pullet.

1st	No. 444	Binnie, W., Garth House, Denny (Hen, Wyandotte, White).
2nd	No. 452	Paterson, Alexander, Blankets, Oldmeldrum (Pullet, Wyandotte, White).
3rd	No. 457	Robertson, John, Craigend, Dundas Castle, South Queensferry (Pullet, Rhode Island Red).
V	No. 453	Paterson, Alexander, Blankets, Oldmeldrum (Pullet, Wyandotte, White).
H	No. 449	Mechie, John, Upper Greens, Auchtermuchty (Pullet, Dorking, Silver).
C	No. 445	Brodie, Mrs, Lethen, Nairn (Hen, Rhode Island Red).
C	No. 455	Peterkin, M. Grant, Grange Hall, Forres (Hen, Wyandotte, White).

CLASS 94. PURE-BRED FOWLS FOR LAYING PURPOSES—Any Light Breed—Hen or Pullet.

1st	No. 475	Weir, James, Brickhouse, New Abbey Road, Dumfries (Hen, Leghorn, White).
2nd	No. 466	M'Millan, Robert, Forty Acres Poultry Farm, Kilmarnock (Hen, Leghorn, Black).
3rd	No. 461	Binnie, W., Garth House, Denny (Hen, Leghorn, White).
V	No. 474	Shewan, Alexander, South Percyhorner, Fraserburgh (Hen, Leghorn, White).
H	No. 463	Cameron, Mrs Allan, Darris, Dores, Inverness (Hen, Leghorn, Black).
C	No. 467	Manson, William, 61 Whitehall, Maybole (Hen, Leghorn, Brown).
C	No. 472	Ross, Colin, The Poultry Farm, Forres (Hen, Leghorn, White).
C	No. 476	Younger, W. R., Auchen Castle, Moffat (Hen, Leghorn, Black).

CLASS 95. CROSS-BRED FOWLS FOR LAYING PURPOSES—Hen.

1st	No. 480	M'Millan, Robert, Forty Acres Poultry Farm, Kilmarnock.
2nd	No. 482	Ramsay, William, Muirhouse Cottage, Crosshouse.
3rd	No. 478	Binnie, W., Garth House, Denny.
V	No. 481	Manson, William, 61 Whitehall, Maybole.
H	No. 483	Weir, James, Brickhouse, New Abbey Road, Dumfries.
C	No. 477	Argo, Fred, Bructor, Inverurie.

CLASS 96. CROSS-BRED FOWLS FOR LAYING PURPOSES —Pullet.

1st	No. 484	Binnie, W., Garth House, Denny.
2nd	No. 489	Weir, James, Brickhouse, New Abbey Road, Dumfries.
3rd	No. 485	M'Millan, Robert, Forty Acres Poultry Farm, Kilmarnock.
V	No. 487	Munro, R. J., Fodderty Lodge Poultry Farm, Dingwall.
H	No. 488	Ramsay, William, Muirhouse Cottage, Crosshouse.
C	No. 486	Morgan, William, Balcurvie, Windygates.

CLASS 97. DUCKS—Aylesbury—Drake.

1st	No. 490	Dalgleish, James P., of Westgrange, Bogside Station, Alloa.
2nd	No. 491	Durno, James, Rothiebrisbane, Fyvie.
3rd	No. 492	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.
V	No. 493	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.

CLASS 98. DUCKS—Aylesbury—Duck.

1st	No. 498	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.
2nd	No. 499	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.
3rd	No. 496	Durno, James, Rothiebrisbane, Fyvie.
V	No. 500	M'Connachie, J. C., Baley, Tillynaught, Portsoy.

CLASS 99. DUCKS—Aylesbury—Drake (Young).

1st	No. 502	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.
2nd	No. 503	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.
V	No. 501	Anderson, Robert, Fingask House, Oldmeldrum.

CLASS 100. DUCKS—Aylesbury—Duck (Young).

1st	No. 505	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.
2nd	No. 506	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.
V	No. 504	Anderson, Robert, Fingask House, Oldmeldrum.

CLASS 101. DUCKS—Orpington—Drake.

1st	No. 509	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.
2nd	No. 508	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.
V	No. 507	Cameron, Mrs Allan, Darris, Dores, Inverness.

CLASS 102. DUCKS—Orpington—Duck.

1st	No. 510	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.
2nd	No. 511	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.

CLASS 103. DUCKS—Orpington—Drake (Young).

1st	No. 513	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.
2nd	No. 512	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.

CLASS 104. DUCKS—Orpington—Duck (Young).

1st	No. 514	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.
2nd	No. 515	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream.

CLASS 105. DUCKS—Indian Runner—Drake.

1st	No. 523	Shewan, Alexander, South Percyhorner, Fraserburgh.
2nd	No. 517	Annand, Pat. D., 106 Mid Street, Keith.
3rd	No. 518	Annand, Pat. D., 106 Mid Street, Keith.
V	No. 516	Annand, Pat. D., 106 Mid Street, Keith.
H	No. 520	Dalgleish, James P., of Westgrange, Bogside Station, Alloa.
C	No. 519	Argo, Fred, Bructor, Inverurie.
C	No. 521	Kirkwood, Robert Arthur, Camelon Hotel, Falkirk.
C	No. 524	Smith, Matthew, Netherholme House, Dumfries.
C	No. 525	Young, John, Station House, Dirleton.

CLASS 106. DUCKS—Indian Runner—Duck.

1st	No. 529	Argo, Fred, Bructor, Inverurie.
2nd	No. 531	Kirkwood, Robert Arthur, Camelon Hotel, Falkirk.
3rd	No. 528	Annand, Pat. D., 106 Mid Street, Keith.
V	No. 527	Annand, Pat. D., 106 Mid Street, Keith.
H	No. 530	Dalgleish, James P., of Westgrange, Bogside Station, Alloa.
C	No. 532	Macgregor, James Scott, Bridgend Bakery, Greenlaw.

CLASS 107. DUCKS—Any other Variety—Drake.

1st	No. 537	Smith, Miss Ina, Upper Kirkton, Barthol Chapel, Oldmeldrum (Khaki Campbell).

CLASS 108. DUCKS—Any other Variety—Duck.

1st	No. 538	M'Pherson, Robert, Drumboy, Darvel (Wild).

CLASS 109. GEESE—Gander.

1st	No. 540	Rottenburg, F. A., Lochlane, Crieff.
2nd	No. 541	Shewan, Alexander, South Percyhorner, Fraserburgh.
V	No. 539	Rottenburg, F. A., Lochlane, Crieff.

CLASS 110. GEESE—Goose.

1st	No. 542	Rottenburg, F. A., Lochlane, Crieff.
2nd	No. 543	Shewan, Alexander, South Percyhorner, Fraserburgh.

CLASS 111. TURKEYS—Cock.

1st	No. 551	Smith, Miss Ina, Upper Kirkton, Barthol Chapel, Oldmeldrum.
2nd	No. 550	Smith, Miss Ina, Upper Kirkton, Barthol Chapel, Oldmeldrum.
3rd	No. 546	Rottenburg, F. A., Lochlane, Crieff.
V	No. 548	Shewan, Alexander, South Percyhorner, Fraserburgh.
H	No. 549	Shewan, Alexander, South Percyhorner, Fraserburgh.

CLASS 112. TURKEYS—Hen.

1st	No. 554	Rottenburg, F. A., Lochlane, Crieff.
2nd	No. 556	Smith, Miss Ina, Upper Kirkton, Barthol Chapel, Oldmeldrum.
3rd	No. 555	Shewan, Alexander, South Percyhorner, Fraserburgh.

TABLE POULTRY.

CLASS 113. (*a*) TABLE FOWLS—Any Pure Breed—Cockerel.

1st	No. 560	Mechie, John, Upper Greens, Auchtermuchty (Dorking Silver).
2nd	No. 557	Binnie, W., Garth House, Denny (Wyandotte, White).
3rd	No. 558	Black, William A. P., Croftfoot, Old Polmont (Rhode Island Red).

CLASS 114. TABLE FOWLS—Any Pure Breed—Pair of Pullets.

1st	No. 562	Mechie, John, Upper Greens, Auchtermuchty (Dorking).
2nd	No. 563	Wilkie, John, Orr Bridge Poultry Farm, Dysart (Sussex).
V	No. 561	Black, William A. P., Croftfoot, Old Polmont (Sussex).

CLASS 115. TABLE FOWLS—Game Cross—Cockerel.

1st	No. 564	Black, William A. P., Croftfoot, Old Polmont (Indian Game—Sussex).
2nd	No. 565	Morgan, William, Balcurvie, Windygates (Indian Game—Wyandotte).

CLASS 116. TABLE FOWLS—Game Cross—Pair of Pullets.

1st	No. 568	Morgan, William, Balcurvie, Windygates (Indian Game—Wyandotte).
2nd	No. 566	Black, William A. P., Croftfoot, Old Polmont (Indian Game—Sussex).

CLASS 117. TABLE FOWLS—Any other Cross—Cockerel.

1st	No. 572	Wilkie, John, Orr Bridge Poultry Farm, Dysart (Wyandotte—Sussex).
2nd	No. 571	Wilkie, John, Orr Bridge Poultry Farm, Dysart (Wyandotte—Sussex).
3rd	No. 570	Morgan, William, Balcurvie, Windygates (Wyandotte—Sussex).

CLASS 118. TABLE FOWLS—Any other Cross—Pair of Pullets.

1st	No. 574	Wilkie, John, Orr Bridge Poultry Farm, Dysart (Wyandotte—Sussex).
2nd	No. 573	Black, William A. P., Croftfoot, Old Polmont (Sussex—Orpington).

CLASS 119. (*b*) DUCKLINGS for Table Purposes—Any Breed or Cross—Pair of Ducklings.

1st	No. 577	Ross, Mrs, Westerton, Auchleuchries, Ellon (Aylesbury).
2nd	No. 575	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream (Aylesbury).
3rd	No. 576	Huntly, James, & Son, Hirsel Poultry Farm, Coldstream (Aylesbury).
V	No. 578	Ross, Mrs, Westerton, Auchleuchries, Ellon (Aylesbury).

FUR-PRODUCING RABBITS

First Premium—*Fifteen Shillings.* Second Premium—*Ten Shillings.* Third Premium—*Five Shillings.* In each Class in which there are less than four entries, the Third Prize of Five Shillings will not be awarded.

CLASS 1. BLUE BEVEREN—Buck.

1st	No. 3	M'Kelvie, G. D., Roselea, Bowling Green Street, Methil.
2nd	No. 4	Montgomery, Miss L. Graham, Arnbank, Crieff.

CLASS 2. BLUE BEVEREN—Doe.

1st	No. 6	Stewart, Miss M., Banchory House, Banchory-Devenick.

CLASS 3. BLUE BEVEREN—Buck or Doe, under 5 months at first day of Show.

1st	No. 9	Gibb, James, 19 High Street, New Deer (Buck).
2nd	No. 10	Rae, Alexander, Glebe Nursery, Beith, Ayrshire (Doe).
3rd	No. 11	Stewart, E., 26 Prospect Terrace, Aberdeen (Doe).
V	No. 8	Aberdeen and Temair, The Marchioness of, House of Cromar, Tarland, Aberdeenshire (Buck).
H	No. 12	Stewart, E., 26 Prospect Terrace, Aberdeen (Doe).

CLASS 4. CHINCHILLA—Buck.

1st	No. 31	Wilson, Mr & Mrs, 20 Seafield Street, Cullen.
2nd	No. 25	Morton, Hugh, Auctioneer, Kilmarnock.
3rd	No. 18	Handley, George R., Woodfield, Balmullo, Leuchars, Fife.
V	No. 16	Graham, Mrs E. Balfour, Levenbank, Leven, Fife.
H	No. 26	Paterson, Colin W., 22 Chalmers Road, Ayr.
C	No. 22	M'Gregor, Robert, Kintrae, Spynie, Elgin.

CLASS 5. CHINCHILLA—Doe.

1st	No. 34	Aird, Miss Bessie, 10 Somerset Road, Ayr.
2nd	No. 38	Handley, George R., Woodfield, Balmullo, Leuchars, Fife.
3rd	No. 42	Mitchell, Henry M., Knockhouse, Crossford, Dunfermline.
V	No. 37	Graham, Mrs E. Balfour, Levenbank, Leven, Fife.
H	No. 40	Macaulay, A., 30 Sinclair Street, Thurso.
C	No. 48	Sandison, John W., 24 Great Western Road, Buckie, Banffshire.

CLASS 6. CHINCHILLA—Buck or Doe, under 5 months at first day of Show.

1st	No. 66	Paterson, Colin W., 22 Chalmers Road, Ayr (Doe).
2nd	No. 65	Paterson, Colin W., 22 Chalmers Road, Ayr (Buck).
3rd	No. 60	Jaffray, James, Stationhouse, Tochieneal, Cullen (Buck).
V	No. 72	Wilson, Mr and Mrs, 20 Seafield Street, Cullen (Buck).
H	No. 57	Fraser, W. G., 37 Green Street, Arbroath (Doe).
C	No. 58	Graham, Mrs E. Balfour, Levenbank, Leven, Fife (Doe).

CLASS 7. HAVANA—Buck or Doe.

1st	No. 76	Bell, J. Dunlop, Knockbuckle, Beith, Ayrshire (Doe).
2nd	No. 73	Aberdeen and Temair, The Marchioness of, House of Cromar, Tarland, Aberdeenshire (Buck).
3rd	No. 75	Bell, J. Dunlop, Knockbuckle, Beith, Ayrshire (Buck).
V	No. 74	Aberdeen and Temair, The Marchioness of, House of Cromar, Tarland, Aberdeenshire (Doe).
H	No. 80	Montgomery, Miss L. Graham, Arnbank, Crieff (Buck).
C	No. 82	Nicolson, A. B., Glenbervie House, Drumlithie (Doe).

CLASS 8. LILAC—Buck or Doe.

1st	No. 94	Wood, John, Moor Hall, Madeley, Crewe (Buck).
2nd	No. 87	Glover, Mrs F., 60 Balfour Street, Burton-on-Trent (Doe).
3rd	No. 86	Ballard, Mrs, 56 St Catherine's Road, Winchester, Hants. (Doe).
V	No. 92	Stevenson, A., Kirk Farm, Liberton, Mid-Lothian (Doe).
H	No. 93	Wood, John, Moor Hall, Madeley, Crewe (Buck).
C	No. 88	Montgomery, Miss L. Graham, Arnbank, Crieff (Buck).

CLASS 9. ANGORA—Buck or Doe.

1st	No. 95	Aird, James N., 55 High Street, Kilmarnock (Buck).
2nd	No. 103	Mungo, Mrs, 1 Invermark Terrace, Barnhill, Dundee (Buck).
3rd	No. 96	Beaton, J. & W., Fur Farm, Croy, Gollanfield, Inverness (Buck).
V	No. 102	Mungo, Mrs, 1 Invermark Terrace, Barnhill, Dundee (Doe).
H	No. 98	Chambers-Hunter, A. J., Southfield, Garmouth, Morayshire (Doe).
C	No. 97	Chambers-Hunter, A. J., Southfield, Garmouth, Morayshire (Doe).

CLASS 10. Any other Variety of FUR-PRODUCING RABBIT—Buck or Doe.

1st	No. 117	Tosh, Alexander, 2 Kinnear Lane, Laurencekirk (Buck, Silver Fawn).
2nd	No. 115	Montgomery, Miss L. Graham, Arnbank, Crieff (Buck, Alaska Black).
3rd	No. 113	M'William, Peter A., 43 Craiglea Drive, Edinburgh (Doe, Sable Marten).
V	No. 109	Graham, Mrs E. Balfour, Levenbank, Leven, Fife (Buck, Castorrey).
H	No. 116	Pringle, J. S., East Farm, Killingworth, Northumberland (Doe, Argente de Champagne).
C	No. 107	Aberdeen and Temair, The Marchioness of, House of Cromar, Tarland, Aberdeenshire (Doe, Alaska Black).

HONEY, &c.

Should there be in any Class three or less than three entries, the value of the first prize will be reduced to that of the second, the second to that of the third, and no third prize will be awarded.

OPEN CLASSES.

Silver and Bronze Medals will be awarded by the Scottish Bee-Keepers' Association *to the First and Second winners of the greatest number of points in Classes* 4 *to* 21, *calculated on the following basis ;* 1*st prize,* 3 *points ;* 2*nd prize,* 2 *points ;* 3*rd prize,* 1 *point.*

Silver Medal—Scott, George, Waterton Cottage, Old Cumnock (23 points).

Bronze Medal—Brown, Thomas C., Helenslea, St Ninians, Stirling (13 points).

Championship Cup, value £5, 5s. This Cup has been gifted by the Rev. John Beveridge, M.B.E., B.D., Gartmore.

Scott, George, Waterton Cottage, Old Cumnock (23 points).

CLASS 1. Collection of APPLIANCES suitable for a beginner's outfit for Bee-keeping. A card naming all the articles, along with the price at which they will be supplied for one year from date, to be fixed to the exhibit.—PREMIUMS, 20s., 15s., 10s.

1st No.	4	Steele, R., & Brodie, Bee Appliance Works, Wormit.
2nd No.	1	Burtt & Son, Stroud Road, Gloucester.

CLASS 2. Best and most complete FRAME HIVE for general use, with any improvements. Unpainted.—PREMIUMS, 20s., 15s., 10s.

1st No.	5	Burtt & Son, Stroud Road, Gloucester.
2nd No.	7	Ogilvie, J. & A., 369 Union Street, Aberdeen.
3rd No.	8	Robertson, James, 14 Hadden Street, Aberdeen.
V No.	9	Steele, R., & Brodie, Bee Appliance Works, Wormit.
H No.	6	Lee, Robert, George Street, Uxbridge, and Fens Road, Perth.

CLASS 3. Best and most complete HIVE. Unpainted. Price not to exceed 35s. PREMIUMS, 20s., 15s., 10s.

1st No.	13	Robertson, James, 14 Hadden Street, Aberdeen.
2nd No.	11	Lee, Robert, George Street, Uxbridge, and Fens Road, Perth.
3rd No.	10	Burtt & Son, Stroud Road, Gloucester.
C No.	14	Steele, R., & Brodie, Bee Appliance Works, Wormit.

CLASS 4. Six Sections of COMB HONEY, excluding Heather Honey.—PREMIUMS, 20s., 15s., 10s.

1st No.	28	Scott, George, Waterton Cottage, Old Cumnock.
2nd No.	29	Thoms, John, Rosslyn Cottage, Coupar-Angus.
3rd No.	20	Fife Bee Garden, Limited, Dura Den, Cupar, Fife.

CLASS 5. Six Sections of HEATHER HONEY. —PREMIUMS, 20s., 15s., 10s.

1st No.	31	Scott, George, Waterton Cottage, Old Cumnock.
2nd No.	30	Brown, Thomas C., Helenslea, St Ninians, Stirling.

CLASS 6. Six Jars of RUN or EXTRACTED LIGHT-COLOURED HONEY, approximate weight 6 lb.—Premiums, 20s., 15s., 10s.

1st	No. 40	Scott, George, Waterton Cottage, Old Cumnock.
2nd	No. 34	Duguid, Robert, Station House, Dandaleith, Craigellachie.
3rd	No. 32	Brown, Thomas C., Helenslea, St Ninians, Stirling.
V	No. 39	Pullar, David, The Gardens, Dura, Cupar, Fife.
H	No. 37	Fife Bee Garden, Limited, Dura Den, Cupar, Fife.
C	No. 36	Fernie, William, Westfield Avenue, Cupar, Fife.

CLASS 7. Six Jars of RUN or EXTRACTED MEDIUM or DARK-COLOURED HONEY, excluding Heather Honey, approximate weight 6 lb.—Premiums, 20s., 15s., 10s.

1st	No. 41	Brown, Thomas C., Helenslea, St Ninians, Stirling.
2nd	No. 42	Fernie, William, Westfield Avenue, Cupar, Fife.
3rd	No. 46	Scott, George, Waterton Cottage, Old Cumnock.

CLASS 8. Six Jars of PRESSED HEATHER HONEY in liquid form, approximate weight 6 lb.—Premiums, 20s., 15s., 10s.

1st	No. 53	Scott, George, Waterton Cottage, Old Cumnock.
2nd	No. 48	Duguid, Robert, Station House, Dandaleith, Craigellachie.
3rd	No. 49	Ettles, William, Broomhill Lodge, Keith.
H	No. 47	Brown, Thomas C., Helenslea, St Ninians, Stirling.

CLASS 9. Six Jars of GRANULATED HONEY, approximate weight 6 lb.—Premiums, 20s., 15s., 10s.

1st	No. 65	Thoms, John, Rosslyn Cottage, Coupar-Angus.
2nd	No. 56	Brown, Thomas C., Helenslea, St Ninians, Stirling.
3rd	No. 59	Pate, Thomas, Hopefield, Milnathort, Kinross-shire.
H	No. 61	Rollo, John A., Wester Forret, Cupar, Fife.
C	No. 62	Salter, Alexander, Brodiach, Countesswells, Aberdeenshire.

CLASS 10. Two Shallow Frames of COMB HONEY for extracting purposes.—Premiums, 20s., 15s., 10s.

1st	No. 75	Thoms, John, Rosslyn Cottage, Coupar-Angus.
2nd	No. 72	Leckie, Robert Westlands, The Manse, Davidson's Mains, Edinburgh.

CLASS 11. PRODUCTS made with the aid of Honey.—Premiums, 20s., 15s., 10s.

1st	No. 82	Shand, Mrs George, Brotherfield, Countesswells, Aberdeenshire.
2nd	No. 78	Fife Bee Garden, Limited, Dura Den, Cupar, Fife.
3rd	No. 76	Brown, Thomas C., Helenslea, St Ninians, Stirling.

CLASS 12. Best display of HONEY in any form staged in space 3 feet by 3 feet, height from table not exceeding 4 feet. Weight of Honey not to exceed 40 lb.—Premiums, 60s., 30s., 20s.

1st	No. 83	Fife Bee Garden, Limited, Dura Den, Cupar, Fife.

CLASS 13. Best exhibit of not less than 1 lb. of WAX in any form.—Premiums, 20s., 15s., 10s.

1st	No. 85	Cunningham, John, 51 George Street, Bonhill, Dumbartonshire.
2nd	No. 86	Duguid, Robert, Station House, Dandaleith, Craigellachie.
3rd	No. 84	Brown, Thomas C., Helenslea, St Ninians, Stirling.
V	No. 89	Hutton, Agnes M., Gibliston, Kilconquhar.
H	No. 94	Watson, Thomas Y., Balcairn, Oldmeldrum.

CLASS 14. Best exhibit of not less than 1 lb. of WAX made into shapes for retail trade and over-counter trade. Convenience in packing to be taken into consideration.—PREMIUMS, 20s., 15s., 10s.

1st No. 96 Cunningham, John, 51 George Street, Bonhill, Dumbartonshire.
2nd No. 98 Hutton, Agnes M., Gibliston, Kilconquhar.
3rd No. 95 Brown, Thomas C., Helenslea, St Ninians, Stirling.

CLASS 15. OBSERVATORY HIVE, with Queen and Bees—two or more frames.—PREMIUMS, 50s., 30s., 20s.

1st No. 103 Low, A. D., Rosehall Cottage, Newmachar, Aberdeen.
2nd No. 102 Hutton, William, 92 St Leonard's Street, Dunfermline.

CLASS 16. OBSERVATORY HIVE with Queen and Bees—one frame. —PREMIUMS, 40s., 30s., 15s.

1st No. 105 Brown, James, Police Station, Inverurie.
2nd No. 106 Duguid, Robert, Station House, Dandaleith, Craigellachie.

CONFINED TO SCOTTISH EXHIBITORS.

CLASS 17. One standard Frame of COMB HONEY for extracting purposes.—PREMIUMS, 20s., 15s., 10s.

1st No. 110 Brown, Thomas C., Helenslea, St Ninians, Stirling.
2nd No. 112 Fife Bee Garden, Limited, Dura Den, Cupar, Fife.

CLASS 18. Six Sections of COMB HONEY, excluding Heather Honey.—PREMIUMS, 20s., 15s., 10s.

1st No. 133 Scott, George, Waterton Cottage, Old Cumnock.
2nd No. 134 Thoms, John, Rosslyn Cottage, Coupar-Angus.
3rd No. 130 Rollo, John A., Wester Forret, Cupar, Fife.
H No. 126 Milne, Mrs A., Upper Affloch, Dunecht.
C No. 122 Hutton, William, 92 St Leonard's Street, Dunfermline.

CLASS 19. Six Sections of HEATHER HONEY. —PREMIUMS, 30s., 20s., 10s.

1st No. 138 Scott, George, Waterton Cottage, Old Cumnock.
2nd No. 136 Duguid, Robert, Station House, Dandaleith, Craigellachie.
3rd No. 135 Brown, Thomas C., Helenslea, St Ninians, Stirling.

CLASS 20. Six Jars of RUN or EXTRACTED MEDIUM or DARK-COLOURED HONEY, excluding Heather Honey, approximate weight 6 lb.—PREMIUMS, 30s., 20s., 10s.

1st No. 142 Ettles, William, Broomhill Lodge, Keith.
2nd No. 146 Pullar, David, The Gardens, Dura, Cupar, Fife.
3rd No. 149 Scott, George, Waterton Cottage, Old Cumnock.
V No. 143 Fernie, William, Westfield Avenue, Cupar, Fife.
C No. 140 Brown, Thomas C., Helenslea, St Ninians, Stirling.

CLASS 21. Six Jars of RUN or EXTRACTED LIGHT-COLOURED HONEY, approximate weight 6 lb.—PREMIUMS, 30s., 20s., 10s.

1st	No. 167	Scott, George, Waterton Cottage, Old Cumnock.
2nd	No. 161	Milne, Mrs A., Upper Affloch, Dunecht.
3rd	No. 155	Duncan, Andrew, 54 Fife Street, Turriff.
V	No. 150	Alexander, John, Brodiach, Countesswells, Aberdeenshire.
H	No. 151	Brown, Thomas C., Helenslea, St Ninians, Stirling.
C	No. 154	Duguid, Robert, Station House, Dandaleith, Craigellachie.
C	No. 157	Fife Bee Garden, Limited, Dura Den, Cupar, Fife.
C	No. 164	Rollo, John A., Wester Forret, Cupar, Fife.

DAIRY PRODUCE

CLASS 1. POWDERED BUTTER, not less than 3 lb.-PREMIUMS, £4, £2, and £1.

1st	No. 4	Monteith, Mrs, The Island, Bothkennar, Falkirk.
2nd	No. 1	Fleming, Andrew, Threepland, Eaglesham.
3rd	No. 5	Ramage, Mrs James, Lathallan Road, Polmont.
V	No. 6	Rennie, Miss, Parkhead, Slamannan.

CLASS 2. FRESH BUTTER, Three 1-lb. Rolls.—PREMIUMS, £4, £2, and £1.

1st	No. 17	Rennie, Miss, Parkhead, Slamannan.
2nd	No. 15	Monteith, Mrs, The Island, Bothkennar, Falkirk.
3rd	No. 12	Fleming, Andrew, Threepland, Eaglesham.
V	No. 20	Shanks, Miss, Broomhill, Denny.
H	No. 22	Stratton, Miss I. A., Meadowmore, Methven, Perth.

CLASS 3. CHEDDAR CHEESE, 56 lb. and upwards.—PREMIUMS, £9, £5, £3, £2, and £1.

1st	No. 35	M'Dowall, George, South Boreland, Dunragit, Wigtownshire.
2nd	No. 27	Cruickshanks, William, Kirkeoch, Kirkcudbright.
3rd	No. 36	M'Harg, John, Barbeth, Leswalt, Stranraer.
4th	No. 39	Muir, Andrew, Milton Park, Castle Douglas.
5th	No. 28	Dean, William, Cairniehill, Borgue, Kirkcudbright.
V	No. 34	Little, Peter, Cumstoun Mains, Twynholm.

CLASS 4. CHEESE, 14 lb. and under.—PREMIUMS, £5, £3, £2, and £1.

1st	No. 50	M'Dowall, George, South Boreland, Dunragit, Wigtownshire.
2nd	No. 51	M'Harg, John, Barbeth, Leswalt, Stranraer.
3rd	No. 44	Cruickshanks, William, Kirkeoch, Kirkcudbright.
4th	No. 41	Borland, John, Slagnaw Dairy, Kirkcudbright.
V	No. 45	Dean, William, Cairniehill, Borgue, Kirkcudbright.
H	No. 54	Muir, Andrew, Milton Park, Castle Douglas.

WOOL

PURE BREED CLASSES.

CLASS 1. BLACKFACE WOOL—EWE. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st No.	6	Thompson, William, Elibank, Walkerburn, Peeblesshire.
2nd No.	5	Thompson, William, Elibank, Walkerburn, Peeblesshire.
3rd No.	4	Novar Estates, Limited, Novar, Evanton, Ross-shire.

CLASS 2. BLACKFACE WOOL—HOGG. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st No.	12	Thompson, William, Elibank, Walkerburn, Peeblesshire.
2nd No.	11	Novar Estates, Limited, Novar, Evanton, Ross-shire.
3rd No.	8	Barbour, William, Strathdee, Kirkcudbright.

CLASS 3. CHEVIOT WOOL—EWE. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st No.	15	Elliot, Robert T., Chatto, Kelso.
2nd No.	16	Thompson, William, Elibank, Walkerburn, Peeblesshire.
3rd No.	14	Crawford & Balcarres, The Earl of, K.T., Balcarres, Colinsburgh.

CLASS 4. CHEVIOT WOOL—HOGG. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st No.	18	Elliot, Robert T., Chatto, Kelso.
2nd No.	17	Crawford & Balcarres, The Earl of, K.T., Balcarres, Colinsburgh.

CLASS 5. BORDER LEICESTER WOOL—EWE. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st No.	19	Templeton, T. & M., Sandyknowe, Kelso.
2nd No.	20	Templeton, T. & M., Sandyknowe, Kelso.

CLASS 6. BORDER LEICESTER WOOL—HOGG. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st No.	21	Templeton, T. & M., Sandyknowe, Kelso.
2nd No.	22	Templeton, T. & M., Sandyknowe, Kelso.

CLASS 7. HALF-BRED WOOL—EWE. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st No.	23	Brown, John C., Hundalee, Jedburgh.
2nd No.	24	Brown, John C., Hundalee, Jedburgh.
3rd No.	25	Templeton, T. & M., Sandyknowe, Kelso.

CLASS 8. HALF-BRED WOOL—HOGG. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st No.	26	Brown, John C., Hundalee, Jedburgh.
2nd No.	27	Brown, John C., Hundalee, Jedburgh.
3rd No.	29	Templeton, T. & M., Sandyknowe, Kelso.

CLASS 9. OXFORD-DOWN WOOL—EWE. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st	No. 32	Templeton, T. &. M., Sandyknowe, Kelso.
2nd	No. 31	Malcolm, William T., Whittingehame Mains, Haddington.
3rd	No. 30	Malcolm, William M., Softlaw, Kelso.

CLASS 10. OXFORD-DOWN WOOL—HOGG. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st	No. 34	Templeton, T. & M., Sandyknowe, Kelso.
2nd	No. 33	Malcolm, William M., Softlaw, Kelso.

CLASS 11. SUFFOLK WOOL—EWE. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st	No. 36	Taylor, J. P. Ross, Mungos Walls, Duns.
2nd	No. 35	Hutton, Duncan F., Gibliston, Kilconquhar.

CLASS 12. SUFFOLK WOOL—HOGG. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st	No. 38	Taylor, J. P. Ross, Mungos Walls, Duns.
2nd	No. 37	Hutton, Duncan F., Gibliston, Kilconquhar.

CLASS 13. DORSET HORN WOOL—EWE. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st	No. 40	Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline.
2nd	No. 39	Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline.
3rd	No. 41	Hutton, Duncan F., Gibliston, Kilconquhar.

CLASS 14. DORSET HORN WOOL—HOGG. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st	No. 43	Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline.
2nd	No. 42	Elgin and Kincardine, The Earl of, C.M.G., Broomhall, Dunfermline.

CLASS 15. SHETLAND WOOL—EWE. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st	No. 44	Campbell, Mrs M. E., Dolphinton House, Dolphinton.
2nd	No. 45	Campbell, Mrs M. E., Dolphinton House, Dolphinton.
3rd	No. 47	Tulloch, J., & Company, Urafirth, Northmavine, Shetland.

CLASS 16. SHETLAND WOOL—HOGG. Three Fleeces.— PREMIUMS, £3, £2, and £1.

1st	No. 51	Campbell, Mrs M. E., Dolphinton House, Dolphinton.
2nd	No. 50	Campbell, Mrs M. E., Dolphinton House, Dolphinton.
3rd	No. 49	Anderson, T. J., Cairnfield, Lerwick.

RURAL INDUSTRIES

OPEN CLASSES.

SHETLAND KNITTING.

(Exhibits made from Shetland Wool.)

CLASS 1. FINE LACE GOODS.—PREMIUMS, £3, £2, and £1.

1st	No.	1	Clark, Mrs W., Newgord, Uyeasound, Lerwick (Scarf).
2nd	No.	2	Clark, Mrs W., Newgord, Uyeasound, Lerwick (Scarf).
3rd	No.	13	Spence, Miss Annie, Westside, Uyeasound, Shetland (Scarf).
V	No.	11	Sinclair, Miss Agnes, Swanks, Fetlar, Shetland (Scarf).
H	No.	8	Jamieson, Miss M., Gerriegarth, Baltasound, Lerwick (Scarf).
C	No.	10	Robertson, Miss Mary C. S., Coutts Mill, Uyeasound, Lerwick (Shawl).

CLASS 2. JUMPER, SPORTS COAT, or DRESS—one or more Colours.—PREMIUMS, £3, £2, and £1.

1st	No.	26	Irvine, Miss I., Post Office, Mossbank, Lerwick (Sports Coat).
2nd	No.	18	Colvin, Miss I. C. J., Ponston, Levenwick, Lerwick (Sleeveless Cardigan).
3rd	No.	19	Dalziel, Miss A., Tait's Buildings, Commercial Road, Lerwick (3-Piece Suit).
V	No.	38	Tulloch, Miss M. A., Urafirth, Northmavine, Shetland (Jumper).
H	No.	29	Laurenson, Miss G. B., Maywick, Bigton, Shetland (Jumper).
C	No.	16	Burgess, Miss H., Scousburgh, Lerwick (Jumper).

CLASS 3. JUMPER or SPORTS COAT—all over Fair Isle.—PREMIUMS, £3, £2, and £1.

1st	No.	45	Henderson, Miss A., North Levenwick, Lerwick (Jumper).
2nd	No.	57	Sinclair, Miss Agnes, Swanks, Fetlar, Shetland (Jumper).
3rd	No.	41	Colvin, Miss Sarah M., The Beadies, Levenwick, Lerwick (Jumper).
V	No.	43	Garriock, Thomas J., Funzie, Fetlar, Shetland (Sleeveless Cardigan).
H	No.	46	Hughson, Miss Belle, Hubie, Fetlar, Shetland (Gent.'s Waistcoat).
C	No.	54	Nicolson, Miss M., 35 Claremont Place, Aberdeen (Jumper).
C	No.	56	Petrie, Miss J., Aithness, Fetlar, Shetland (Jumper).

CLASS 4. OTHER EXHIBITS—PREMIUMS, £2, £1, and 10s.

1st	No.	62	Brown, Miss M. J., Kingland, Ollaberry, Shetland (Shawl).
2nd	No.	63	Brown, Miss M. J., Kingland, Ollaberry, Shetland (Combinations).
3rd	No.	61	Brown, Mrs G., Collafirth, Ollaberry, Shetland (Shawl).
V	No.	68	Henderson, Miss C. M., Wellbrae Cottage, Coubal, Scousburgh (Sports Stockings—Gent.'s).
H	No.	60	Blanche, Mrs James, Roadside Cottage, Sandwick, Shetland (Boy's Suit).
C	No.	69	Henderson, Mrs J. R., Scousburgh, Lerwick (Stockings).

TWEEDS.

CLASS 5. HARRIS or OTHER TWEED—Hand-spun, Hand-woven, and Vegetable-dyed.—PREMIUMS, £3, £2, and £1.

1st	No. 84	Mackay, Miss Rachel, 12 Portnalong, Talisker, Skye.
2nd	No. 86	Macleod, Mrs, 20 Portnalong, Talisker, Skye.
3rd	No. 78	Ferguson, Mrs, 4 Fernilea, Talisker, Skye.
V	No. 87	Macleod, Mrs Donald John, 17 Portnalong, Talisker, Skye.
H	No. 80	Macdonald, Mrs Malcolm, 6 Portnalong, Talisker, Skye.
C	No. 82	MacGregor, Robert, 10 Paton Street, Inverness.

CLASS 6. TWEED—Mill-spun, Hand-woven. —PREMIUMS, £3, £2, and £1.

1st	No. 101	MacGregor, Robert, 10 Paton Street, Inverness.
2nd	No. 99	Macdonald, Miss Margaret, Rheanbreck, Lairg.
3rd	No. 104	Robertson, Mrs W., Acheilidh, Rogart, Sutherland.
V	No. 106	Sutherland, Mrs, West Pittentrail, Rogart, Sutherland.
H	No. 92	Bangour Mental Hospital, West Lothian.
C	No. 102	MacGregor, Robert, 10 Paton Street, Inverness.

MISCELLANEOUS.

CLASS 7. HOME-MADE RUG (WOOL).—PREMIUMS, £3, £2, and £1.

1st	No. 121	Harper, E., Mental Hospital, Riccartsbar, Paisley.
2nd	No. 127	M'Kinstry, Miss M., Craigielea, Cardross, Dumbartonshire.
3rd	No. 132	Nutten, Horace, Northfleet, Granville Place, Aberdeen.
H	No. 140	Sime, Mrs H. B., Bellevue, Lower Largo, Fife.
C	No. 115	Douglas, Mrs E., Gateside of Nevay, Newtyle, Forfarshire.
C	No. 136	Purves, Mrs A., Glenkinchie, Pencaitland.
C	No. 144	Thain, Mrs Mary, Sluie House, Banchory.

CLASS 8. EMBROIDERY—White (to be exhibited unwashed).—PREMIUMS, £3, £2, and £1.

1st	No. 155	Telfer, Miss Isabella, Ottercaps, Kirkwhelpington, Newcastle-on-Tyne (Tea Cloth).
2nd	No. 148	Burns, Miss Isabelle, 24 Torphichen Street, Edinburgh (Nightdress).
3rd	No. 152	Simpson, Mrs J. A., Castlecraig, Dolphinton, Peeblesshire (Tea Cloth).
V	No. 156	Veitch, Miss Margaret M., Schoolhouse, Lochgair, Argyll (Princess Petticoat).
C	No. 154	Stewart, Miss A. A., Lochhill, Ringford, Kirkcudbright (Pillow Case).

CLASS 9. EMBROIDERY—Coloured.—PREMIUMS, £3, £2, and £1.

1st No. 170 Harvie, Miss N. H., Gavinbank Cottage, Blackwood, Kirkmuirhill (Bedspread).
2nd No. 158 Anderson, Mrs R., Fingask House, Oldmeldrum (Bedspread).
3rd No. 186 Shields, Mrs E. H., The Farm, Longniddry, East Lothian (Chair Seat).
V No. 181 Mitchell, Mrs C. R., The Manse, Aberfeldy (Cushion).
H No. 188 Shields, Mrs J. M., Mak' Merry Studio, Macmerry, East Lothian (Pochette).
C No. 161 Blair, Miss J. C., Mak' Merry Studio, Macmerry, East Lothian (Fender Stool).
C No. 162 Blair, Miss J. C., Mak' Merry Studio, Macmerry, East Lothian (Luncheon Set).
C No. 165 Chisholm, Miss E. T., 7 Links Road, Longniddry, East Lothian (Cushion Cover).
C No. 176 Livingstone, Mrs Mary, Mak' Merry Studio, Macmerry, East Lothian (Hassock).

CLASS 10. LEATHER GLOVES.—PREMIUMS, £2, £1, and 10s.

1st No. 193 Dunchurch and Thurlaston Women's Institute, Rugby.
2nd No. 197 Winchester, Mrs A. E., The Manse, Arrochar.
3rd No. 195 Dunchurch and Thurlaston Women's Institute, Rugby.

CLASS 11. SPECIMEN OF LEATHER WORK OTHER THAN GLOVES.—PREMIUMS, £2, £1, and 10s.

1st No. 205 Gulliver, Mrs J. H., The Old School House, Hampton-on-the-Hill, Warwick (Writing Case).
2nd No. 206 Ireland, Miss N. S., Elvan, Rotchell Road, Dumfries (Firescreen).
3rd No. 210 King, Miss Nan, Bellevale Avenue, Ayr (Handbag).
V No. 199 Brown, Miss A. M., Kirkinner, Wigtownshire (Coat).
C No. 203 Fife Federation S.W.R.I., Balchrystie, Colinsburgh (Bag).

CLASS 12. SPECIMEN OF FURCRAFT.—PREMIUMS, £2, £1, and 10s.

1st No. 222 Dunchurch and Thurlaston Women's Institute, Rugby (Gloves).
2nd No. 225 Jamieson, Mrs I. A., School House, Aberlady, East Lothian (Coat).
3rd No. 226 Macdonald, Mrs L., South Lodge, Lydgait, Haddington (Fur-backed Gloves).
V No. 223 Dunchurch and Thurlaston Women's Institute, Rugby (Gloves).
C No. 224 Hitchman, Miss Thistle, Laurelbank, Edzell (Coat).

CLASS 13. SPECIMEN OF HAND-PAINTED POTTERY.—PREMIUMS, £2, £1, and £10s.

1st No. 244 Wight, Miss B., Mak' Merry Studio, Macmerry, East Lothian (Jug).
2nd No. 234 Henderson, Miss Tib, Loudonstone, Trabboch, Tarbolton Station, Ayrshire (Plate).
3rd No. 231 Blair, Miss J. C., Mak' Merry Studio, Macmerry, East Lothian (Jug).
V No. 235 Henderson, Miss Tib, Loudonstone, Trabboch, Tarbolton Station, Ayrshire (Tea Set).
H No. 243 Wight, Miss B., Mak' Merry Studio, Macmerry, East Lothian (Vase).
C No. 238 Roger, Mrs B., Balgove, St Andrews (Bowl).

CLASS 14. SPECIMEN OF BASKET-WORK (Rafia not eligible).—PREMIUMS, £2, £1, and 10s.

1st	No. 261	Royal Mental Hospital, Occupational Therapy Department, Aberdeen (Waste-paper Basket).
2nd	No. 253	Govan District Mental Hospital, Hawkhead, Glasgow (Chair).
3rd	No. 247	Croft, Mrs Evelyn, North Aston, Oxfordshire (Dog Basket).
V	No. 254	Govan District Mental Hospital, Hawkhead, Glasgow (Chair).
H	No. 255	Govan District Mental Hospital, Hawkhead, Glasgow (Stool).
C	No. 249	Croft, Mrs Evelyn, North Aston, Oxfordshire (Flower Basket).

CLASS 15. BEST COLLECTION OF VEGETABLE-DYED WOOLS. —PREMIUMS, £2, £1, and 10s.

1st	No. 265	Murray, Miss Margaret, Tressidy Hill, Lairg.
2nd	No. 266	Smith, Miss M. Jamieson, Hill Cottage, Sandwick, Lerwick.

CLASS 16. HOME-SPUN YARN—2-3 cuts.— PREMIUMS, £2, £1, and 10s.

1st	No. 267	Clark, Mrs W., Newgord, Uyeasound, Lerwick.
2nd	No. 275	Sinclair, Miss Agnes, Swanks, Fetlar, Shetland.
3rd	No. 270	Hughson, Mrs P. J., Scarpa, Baltasound, Lerwick.
V	No. 269	Henderson, Mrs H., Guddon, Baltasound, Lerwick.
H	No. 268	Coutts, Miss M. B., Funzie, Fetlar, Shetland.
C	No. 274	Petrie, Mrs James, Aithness, Fetlar, Shetland.

CONFINED CLASSES.

Open to Institutes and Members of Institutes in the whole of Scotland.

CLASS 17. GENTLEMAN'S CHAMOIS GLOVES—with button.— PREMIUMS, £3, £2, and £1.

1st	No. 287	Winchester, Mrs A. E., The Manse, Arrochar.
2nd	No. 286	Wight, Miss P., Mak' Merry Studio, Macmerry, East Lothian.
3rd	No. 277	Bonar, Miss J. H., Dechmont, Uphall, West Lothian.
H	No. 288	Wragg, Miss Phyllis, Admiralty Cottages, Arrochar.

CLASS 18. SPECIMEN OF FILET LACE.— PREMIUMS, £3, £2, and £1.

1st	No. 297	Millar, Miss B. W., Easter Kilmany, Kilmany, Dundee.
2nd	No. 299	Winchester, Mrs A. E., The Manse, Arrochar.
3rd	No. 289	Barron, Miss H. L., Inchgower, Buckie.
V	No. 291	Blair, Miss S. E. B., Mak' Merry Studio, Macmerry, East Lothian.
C	No. 290	Barron, Miss H. L., Inchgower, Buckie.

Special Prizes to the Institutes winning the largest number of prizes in Classes 19 to 27 inclusive. First Prize to count six points, Second Prize five points, Third Prize four points, V.H.C. three points, H.C. two points, and C. one point—£3, £2, and £1.

1st	Oldmeldrum Women's Rural Institute (23 points).
2nd	Auchenblae Women's Rural Institute (17 points).
3rd equal	Lonach Women's Rural Institute (11 points); Cluny Women's Rural Institute (11 points).

Confined to Institutes and Members of Institutes in the North-Eastern Area of Scottish Women's Rural Institutes.

CLASS 19. RUG—made from old material.—

PREMIUMS, 20s., 10s., and 5s.

1st	No. 309	Stewart, Mrs A., 23 Low Street, New Pitsligo.
2nd	No. 308	M'William, Miss E., Mansefield, Auchenblae.
3rd	No. 302	Douglas, Mrs E., Gateside of Nevay, Newtyle, Forfarshire.
H	No. 307	Lonach W.R.I., Lonach Hall, Strathdon.
C	No. 310	Young, Mrs Gordon, Mains Gask, Cruden Bay.

CLASS 20. RUG—made from new material.—

PREMIUMS, 20s., 10s., and 5s.

1st	No. 313	M'William, Miss E., Mansefield, Auchenblae.
2nd	No. 312	Lonach W.R.I., Lonach Hall, Strathdon.
3rd	No. 311	Lonach W.R.I., Lonach Hall, Strathdon.

CLASS 21. SPECIMEN OF UPHOLSTERY—fitted box or footstool.

—PREMIUMS, 20s., 10s., and 5s.

1st	No. 315	Harvey, Mrs E. A., 2 Cowgate, Oldmeldrum.
2nd	No. 316	Morice, Miss M., Newton Cottage, Crimond, Lonmay, Aberdeenshire.

CLASS 22. SOCKS—4-ply fingering.—PREMIUMS, 10s., 6s., and 4s.

1st	No. 317	Cassie, Mrs, Knappach Cottage, Banchory.
2nd	No. 323	Milne, Miss J., Honeybarrel, Kildrummy, Mossat, Aberdeenshire.
3rd	No. 326	Russell, Mrs M. P. L., The Burn, Edzell.
V	No. 319	Glennie, Mrs E., 1 Urquhart Road, Oldmeldrum.
H	No. 331	Watt, Mrs, Balcairn, Oldmeldrum.

CLASS 23. BASKET—made from Rafia.—PREMIUMS, 15s., 10s., and 5s.

1st	No. 332	M'William, Miss E., Mansefield, Auchenblae.

CLASS 24. COLOURED EMBROIDERY—Woollen.—

PREMIUMS, 15s., 10s., and 5s.

1st	No. 334	Paterson, Mrs J. L., Gowanlea, Strichen (Cushion Cover).
2nd	No. 333	Milne, Miss Hope, Ordhead, Tillyfourie, Aberdeen (Garden Cushion).
3rd	No. 335	Young, Miss A., Kirkhill, Fettercairn, Laurencekirk (Table Runner).

CLASS 25. PADDED QUILT—home-made.—

PREMIUMS, 20s., 10s., and 5s.

1st	No. 337	Harvey, Mrs E. A., 2 Cowgate, Oldmeldrum.

CLASS 26. LEATHER HANDBAG.—

PREMIUMS, 15s., 10s., and 5s.

1st	No. 340	Henry, Miss B. A., Crofty, Cluny, Tillyfourie, Aberdeen.
2nd	No. 342	Paton, Miss E., Cowsrieve, Peterhead.

CLASS 27. TEA CLOTH—with crochet border.—

PREMIUMS, 15s., 10s., and 5s.

1st	No. 347	Gordon, Mrs, 13 King Street, Oldmeldrum.
2nd	No. 345	Davidson, Mrs Margaret, Mundurno, Bridge of Don, Aberdeen.
3rd	No. 351	Pattullo, Miss Margaret, Rosemount, Edzell.
H	No. 348	Greig, Miss Mary, Viewfield, Bridge of Don, Aberdeen.
C	No. 346	Douglas, Mrs E., Gateside of Nevay, Newtyle, Forfarshire.

HORSE SHOEING

Open to Shoeing-Smiths from any part of Great Britain, Northern Ireland, and Irish Free State.

Clock, given by The Scottish Iron and Steel Co., Ltd., Glasgow, *to the winner of the First Prize in Class* 1.

Canteen of Cutlery, given by Messrs Neilson & Cleland, Ltd., Coatbridge, *to the winner of the Second Prize in Class* 1.

Gold Medal, given by the Mustad Nail Company, *to the winner of Third Prize in Class* 1.

Gold Medal, given by Capewell Horse Nail Company, *to the winner of Fourth Prize in Class* 1.

CLASS 1. FARM HORSES (OPEN CLASS). 1st Prize, £5 and Clock; 2nd Prize, £5 and Canteen of Cutlery; 3rd Prize, £5 and Gold Medal; 4th Prize, £4 and Gold Medal; 5th Prize, £3; 6th Prize, £2; 7th Prize, £2; 8th Prize, £1; 9th Prize, £1.

1st	No. 21	Kinnear, Henry, Dechmont, Uphall.
2nd	No. 22	Paul, Thomas, Barrie Street, Motherwell.
3rd	No. 2	Duncan, James, Newmill, Newburgh, Aberdeen.
4th	No. 47	Reid, Robert, Rathven Smithy, Buckie.
5th	No. 24	Alexander, George, 74 Shiprow, Aberdeen.
6th	No. 6	Farmer, Frank, Millerston House, Busby, Renfrewshire.
7th	No. 25	Mackie, William, Glasgoforest, Kinellar, Aberdeenshire.
8th	No. 28	Young, James, c/o T. Begg, Blacksmith, East Kilbride.
9th	No. 27	Riddell, William, 9 Beaconsfield Terrace, Turriff.

Gold Watch, given by Messrs William Martin, Sons, & Co., Coatbridge, *to the winner of First Prize in Class* 2.

Canteen of Cutlery, given by Messrs Neilson & Cleland, Ltd., Coatbridge, *to the winner of Second Prize in Class* 2.

Gold Medal, given by the Mustad Nail Company, *to the winner of Third Prize in Class* 2.

CLASS 2. FARM HORSES (Juniors under twenty-five years of age).—1st Prize, £5 and Gold Watch; 2nd Prize, £3 and Canteen of Cutlery; 3rd Prize, £2 and Gold Medal; 4th Prize, £1.

1st	No. 67	Nicol, William, Muir of Alford, Alford.
2nd	No. 66	Wood, William, Newmill, Newburgh, Aberdeen.
3rd	No. 72	MacDonald, Alexander, 57 Eastgate, Inverness.
4th	No. 74	Borthwick, Richard S., Mossend Smithy, Gorebridge.

LIVE STOCK JUDGING COMPETITION

INDIVIDUAL COMPETITION.

PREMIUMS, £5, £4, £3, £2, £1.

1st Ferguson, Miss W. G., The Corb, Blairgowrie (68 points).
2nd Equal M'Leod, Miss H. S., Dairy School, Kilmarnock (60 points).
3rd Park, Miss M., Brunstane, Portobello (60 points).
4th Davie, D. D., Dairy School Kilmarnock (58 points).
5th Unkles, Miss S. M., Dairy School, Kilmarnock (58 points).
6th Equal Strang, J. S., Moneydie, Luncarty (58 points).
7th Jack, P. C., Griegston, Cupar, Fife (58 points).
8th Cassie, B., Junior, Auchenclech, Skene (58 points).

TEAM COMPETITION.

1st Prize, £10, and 5 Medium Silver Medals.

Skene Young Farmers' Club, No. 1 Team.

	Points.
Cassie, B., Junior, Auchenclech, Skene	58
Wilkie, J., Easter Ord, Skene	54
Wilkie, C., Easter Ord, Skene	52
Wilkie, P., Easter Ord, Skene	52
Milne, A., Upper Afflock, Skene	48
	264

2nd Prize, £5, and 5 Medium Bronze Medals.

Glasgow & West of Scotland College of Agriculture, No. 1 Team.

	Points.
Davie, D. D., Dairy School, Kilmarnock	58
M'Fadzean, H., Oakbank, Maybole	56
Stodart, T. R., Dairy School, Kilmarnock	52
Henderson, J. B., Dairy School, Kilmarnock	48
Whyte, K. R., Dairy School, Kilmarnock	48
	262

Special Prize for College Team placed highest in Competition, £5.

Glasgow & West of Scotland College of Agriculture, No. 1 Team, 262 points.

NEW IMPLEMENTS

The Judges, having inspected the new implements submitted for competition, have awarded the Society's Silver Medal to the following:—

Dodds & Clark, Summerfield Works, Haddington.

No. 372 DC.5 Power Potato Sorter.

JUDGES.

Shorthorn.—John Taylor, Octon, Hunmanby, S.O., Yorks.

Aberdeen-Angus.—D. M. Allan, Ballintomb, Grantown-on-Spey.

Galloway.—Hugh Fraser, Culmark, Dalry, Galloway.

Belted Galloway.—J. Gardiner, Upper Rusko, Gatehouse-of-Fleet.

Highland.—John M. Macdonald, Whitfield, West Linton.

Ayrshire. — Alexander Cochrane, Nether Craig, Kilmarnock.

British Friesian.—Alexander Wilson, Thornleypark House, Paisley.

Red Poll.—F. D. Brown, Marham Hall, near King's Lynn, Norfolk.

Fat Cattle.—John Alsop, Rosemount Cottage, Inverurie.

Clydesdale Stallions and Colts.—George M'Dowall, Briarbrae, Stranraer.

Clydesdale Geldings.—John Cocker, Hill of Petty, Fyvie.

Clydesdale Mares and Fillies.—Thomas Clark, Pitlandie, Stanley, Perthshire.

Shires.—J. M. Belcher, Tibberton Manor, Wellington, Salop.

Hunters and Riding Ponies.—Lieut.-Colonel Alex. J. King, C.B., C.M.G., D.S.O., Headquarters, Scottish Command, Edinburgh.

Highland Ponies.—John M. Macdonald, Whitfield, West Linton.

Western Island Ponies.—Major William Logan, O.B.E., Doonbank, Inverness.

Shetland Ponies.—Matthew White, M.R.C.V.S., Sandsayre Villa, Lerwick, Shetland.

Harness Classes.—Captain R. Maclean, Drynie House, Inverness.

Blackface Sheep.—J. J. Macmillan, Glencrosh, Moniaive.

Cheviot.—Andrew Douglas, Saughtree, Newcastleton.

Border Leicester.—William Robson, jun., Reavely, Powburn, Northumberland.

Oxford Down. — John Kinnaird, Papple, Haddington.

Suffolk.—J. W. Eagle, The Hall, Walton-on-Naze, Essex.

Shropshire.—J. M. Belcher, Tibberton Manor, Wellington, Salop.

Dorset Horn.—G. A. Kingswell, Wellow Farm, Yarmouth, Isle of Wight.

Fat Sheep.—William B. Williamson, 1, 2, and 3 Market Buildings, Aberdeen.

Goats.—Mrs G. M. Soames, Long Buckby Wharf, Rugby.

Large White Pigs.—George Will, The Farm, Crichton Royal, Dumfries.

Middle White.—John E. B. Cowper, Gogar Mains, Corstorphine.

Large Black.—T. F. Hooley, Dry Drayton, near Cambridge.

Poultry.—John Meikle, Camregan, Girvan—Classes 1 to 22, 61 to 72, 89 to 96; David Reid, Firthview, Portgordon—Classes 23 to 60; John Fulton, Lauder Place, East Linton—Classes 73 to 88; Rev. J. Wilson, The Rectory, Bewcastle, Rowelton, Carlisle—Classes 97 to 119.

Rabbits.—Allan Watson, of Messrs Watmoughs, Limited, Idle, Bradford.

Honey, &c.—G. W. Avery, Edinburgh & East of Scotland College of Agriculture, 13 George Square, Edinburgh.

Dairy Produce.—Alexander Garvie (A. Clement & Sons), 64 Albion Street, Glasgow, C. 1.

Wool.—Convener William Duncan, Forthside, Lennox Row, Trinity, Edinburgh.

Rural Industries.—George I. Russell, High Street, Insch—Classes 1, 2, 3, 4; Miss Bruce, 111A George Street, Edinburgh—Classes 5, 6, 15, 16, [illegible]; J. Mountford, of Messrs Robert M[illegible] & Son, Princes Street, Edinburgh—[illegible] 7, 19, 20, 21, 25; Miss C[illegible]art, [illegible]burgh College of Art, Edinbu[illegible] Classes 8, 9, 17, 18, 24, 27; Miss [illegible] Jack, School of Domestic Science, 352 King Street, Aberdeen—Classes [illegible], 11, 12, 13, 14, 23, 26.

Horse-Shoeing. — William Brown, M.R.C.V.S., Marischal College, Aberdeen; Robert Hall, R.S.S., Blacksmith, Chryston; George Littlejohn, Blacksmith, Protstonhill, Banff.

ATTENDING MEMBERS.

SHORTHORN. —*The Earl of Elgin and Kincardine, C.M.G., J. P. Ross Taylor,* Harry Forbes, Alexander Murray.

ABERDEEN-ANGUS. — *Harry Armour, William Anderson,* William Arnot, James Durno (Rothiebrisbane.)

GALLOWAY.—*James M'Queen,* James B. Grant, J. H. Pattullo.

BELTED GALLOWAY.—*Colonel Robert W. Walker,* Lieut.-Col. William Lilburn.

HIGHLAND. — *James Cruickshank,* James M. Howie, George Wilson.

AYRSHIRE.— *William Low, John W. Prentice,* Alexander Reid (Balbridie), John Thomson.

BRITISH-FRIESIAN.—*Hon. T. G. P. Corbett, Bailie James C. Booth,* Bailie Alexander R. Duncan, John Nathaniel Reid.

RED POLL. — *William C. Hunter,* Lieut.-Colonel Garden Beauchamp Duff.

FAT CATTLE.—*Peter Grant,* Alexander Reid (Craggenmore).

CLYDESDALE STALLIONS AND COLTS.— *John Stewart, Alexander P. Gordon,* George Beaton, William Kemp, Harry Milne.

CLYDESDALE GELDINGS.—*Captain E. F. Lumsden,* David R. Low, William M. Morrison.

CLYDESDALE MARES AND FILLIES.— *A. A. Hagart Speirs, James M'Clean,* William J. Reid, John Strachan, Patrick Strachan.

SHIRES.— *William Meiklem,* Robert Bruce, John P. Sleigh.

HUNTERS AND RIDING PONIES. — *Colonel F. J. Carruthers, Major Robert W. Sharpe,* Alfred H. Reid, jun., William Spalding.

HIGHLAND PONIES.—*Sir Hugh Shaw Stewart, Bart., C.B.,* Captain Charles M'Combie, Dean of Guild John Spencer.

WESTERN ISLAND PONIES. — James Guthrie, David Morris.

SHETLAND PONIES.—*Sir James Inglis Davidson,* K. H. Crawford, Alexander Thomson.

HARNESS CLASSES.—Alexander Allan, Robert Anderson, Donald Fletcher.

BLACKFACE SHEEP.—*Alexander Munro,* Bailie David W. Beaton, James Cowie Innes.

CHEVIOT. — *Phipps O. Turnbull,* Charles A. Preddy, John Rattray.

BORDER LEICESTER.— *William Elliot,* George William Bruce, James Kydd.

OXFORD DOWN. — *Alexander Niven,* George Dawson.

SUFFOLK. — *Bailie William Poole, J.P.,* John L. Fortune.

SHROPSHIRE, DORSET HORN, and FAT SHEEP.—*G. B. Shields,* David Anderson, Bailie William G. Edwards.

GOATS.—*Dr T. G. Nasmyth,* James Argo, Bailie John Milne.

LARGE WHITE PIGS. — *Captain W. Smith Grant,* John Anderson, William G. Macpherson.

MIDDLE WHITE.—*A. H. Reid,* James Leith, Bailie Alexander Reid.

LARGE BLACK.—*J. Duthie Webster,* George A. Garden, W. A. Mackenzie.

POULTRY.--*Dr J. F. Tocher,* Clarence Murray, Robert Pittendreigh, jun., F. A. Watt.

RABBITS.—*The Master of Polwarth,* James Alexander, F. A. Watt, Miss Graham Montgomery, I. D. Campbell.

HONEY, &c. — *Walter Wilson,* Bailie Eric H. Anderson, A. Aikman Blair.

DAIRY PRODUCE. — *Lieut.-Colonel Thomas W. Cuthbert, C.M.G., D.S.O.,* Alexander F. Smith, Andrew Spence.

WOOL.—*John Elliot,* W. C. Moyes.

RURAL INDUSTRIES.—John B. Fowlie, John Hart, Councillor Roberts, Treasurer James R. Rust.

HORSE-SHOEING.—*James Cruickshank, Captain E. F. Lumsden, Colonel Robert W. Walker,* George Crighton, John Ritchie, James Scott.

VETERINARY DEPARTMENT.

CLASS EXAMINATIONS, 1928.

Silver Medals were awarded to the following :—

GLASGOW VETERINARY COLLEGE.

Junior Anatomy	W. F. Barton, Kincardine.
Chemistry	W. F. Barton, Kincardine.
Biology	H. M'Vean, Banff.
Senior Anatomy	J. Omand, Stromness.
Physiology	L. Sahai, India.
Zootechny	J. E. C. Stuart, Peterculter.
Materia Medica	J. B. M'Kinna, Huddersfield.
Pathology	A. P. Steele, Ipswich.
Hygiene	A. P. Steele, Ipswich.
Surgery	W. P. Blount, Derby.
Medicine	W. P. Blount, Derby.

11 Large Silver Medals, £10, 3s. 6d.

ROYAL (DICK) VETERINARY COLLEGE.

Junior Anatomy	William A. Milligan, Annan.
Chemistry	William A. Milligan, Annan.
Biology	William A. Milligan, Annan.
Senior Anatomy	Iain A. Gillespie, Bruichladdich.
Physiology	Iain A. Gillespie, Bruichladdich.
Zootechny	Matthew H. W. Miller, Paisley.
Materia Medica	Findlay J. Kinghorn, Johannesburg
Pathology	George Slavin, Glasgow.
Hygiene	Marion Stewart, Scotstounhill.
Surgery	Neil M'Arthur, Campbeltown.
Medicine	John M. M'Donald, Ayr.

11 Large Silver Medals, £10, 3s. 6d.

DISTRICT COMPETITIONS, 1928.

13 Districts—	10 Grants of £12 each ; 2 of £11 ; and 1 of £10	£152	0	0
6 „	Grants of £15 each	90	0	0
25 „	Special Grants : Medals, £12, 0s. 6d.	174	6	3
	Medals for Shows (39 large)	36	1	6
	Medals for Cottages, Gardens, &c. (1 Medal)	0	7	9
43 „	Medals for Hoeing Competitions, 1927-28	16	13	3
187 „	Medals for Ploughing, 1927-28	93	10	0
Long Service Certificates, £32, 18s. 2d. ; Gold Medals, £90, 5s. 0d. ; and Silver Medals, £32, 11s. 0d. (1927-28)		155	14	2
		£718	12	11

ABSTRACT OF PREMIUMS.

District Competitions	£562	18	9
Long Service Awards	155	14	2
Veterinary Colleges (22 Medals)	20	7	0
	£738	19	11

EDINBURGH SHOW, 1927.

ALTERATIONS IN PRIZE LIST.

On account of animals failing to comply with the Regulations as to calving, foaling and farrowing, the following changes have taken place in the list of animals for which prizes were awarded:—

CATTLE.

SHORTHORN.

Class 7. COW or HEIFER, born on or after 1st December 1924.—
Premiums, £10, £5, £3, and £2.

	No. 42	Chubb, Sir Cecil, Bart., Bapton Manor, Codford, Wilts., Heifer, "Bapton Augusta" (71,904).
1st	No. 45	Harrison, J. & R., Gainford Hall, Gainford, Co. Durham, Heifer, "Prestwick Maud" (81,214).
2nd	No. 41	Chubb, Sir Cecil, Bart., Bapton Manor, Codford, Wilts., Heifer, "Princess Alice" (71,907).
3rd	No. 47	Moray, The Earl of, Doune Lodge, Doune, Perthshire, Cow, "Doune Clipper 14th" (77,316).
4th	No. 44	Crawford and Balcarres, The Earl of, K.T., Balcarres, Colinsburgh Fife, Heifer, "Lady Margery" (72,282).

ABERDEEN-ANGUS.

Class 15. COW or HEIFER, born on or after 1st December 1924.—
Premiums, £10, £5, £3, and £2.

1st	No. 127	Osmond, Leslie K., Beelsby Hall, Grimsby, Heifer, "Pinky Pride 14th of Duthil" (77,899).
2nd	No. 125	Kennedy, Lt.-Col. Norman, D.S.O., of Doonholm, Ayr, Heifer "Bettina of Doonholm" (78,885).
	No. 129	Wilson, Walter, Inchgower, Buckie, Heifer, "Edelweiss of Inchgower" (80,191).
3rd	No. 122	Cumming, J. F., O.B.E., Kinermony Farm, Aberlour, Heifer, "Janette of Kinermony" (78,323).
4th	No. 121	Cumming, J. F., O.B.E., Kinermony Farm, Aberlour, Heifer, "Bumming Maid of Kinermony" (78,318).

The animals failing to qualify are marked thus (*)

HIGHLAND.

Class 33. COW or HEIFER, born in 1924.—Premiums, £10, £5, £3, and £2.

1st	No. 284	Southesk, The Earl of, Kinnaird Castle, Brechin, Heifer, "Corrina of Southesk."
2nd	No. 285	Southesk, The Earl of, Kinnaird Castle, Brechin, Heifor, "Cornelia of Southesk."
3rd	No. 278	M'Douall, A. K., of Logan, Stranraer, Heifer, "Lady Nora of Logan."
*	No. 281	Mackenzie, W. D., of Farr, House of Farr, Inverness, Heifer, "Una II. of Farr."
*	No. 283	Maitland, Brig.-General James Dalgleish Heriot, C.M.G., D.S.O., of Errol, Errol Park, Errol, Heifer, "Luna of Errol."
4th	No. 277	Atholl, The Duke of, K.T., Blair Castle, Blair Atholl, Heifor, "Bean Bhan XIV. of Atholl."

BRITISH FRIESIAN.

Class 47. HEIFER, born in 1925.—Premiums, £10, £5, and £3.

1st	No. 378	MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farms, Tarland, Aberdeenshire, "Douneside Ischia 3rd" (92,534).
*	No. 377	Macaulay, Andrew, Lathalmond Farm, Dunfermline, "Lathalmond Tessmijn" (95,574).
2nd	No. 379	MacRobert, Trustees of Sir Alasdair W., Bart., Douneside Home Farms, Tarland, Aberdeenshire, "Douneside Maris" (92,536).
3rd	No. 381	Pathhead & Sinclairtown Reform Co-operative Society, Limited, 102 Commercial Street, Kirkcaldy, "Abden Mysie" (89,076).

HORSES.

DRAUGHT MARES.

Class 72. YELD MARE, born before 1924.—Premiums, £15, £9, £6, and £4.

*	No. 572	Cairns, James, Abercromby, St Monance, "Abercromby Emma" (47,287).
*	No. 574	Kerr, J. E., of Harviestoun, Dollar, "Harviestoun Prudence."
*	No. 575	Miller, William S., jun., Balmanno Castle, Bridge of Earn, "Balmanno Julia."

PIGS.

MIDDLE WHITE.

Class 157. SOW, born in 1926.—Premiums, £8, £4, and £2.

1st	No. 1478	Gamlen, Dr H. E., 87 Jesmond Road, Newcastle-on-Tyne, "Fordon Vera 18th" (163,382).
*	No. 1479	Gamlen, Dr H. E., 87 Jesmond Road, Newcastle-on-Tyne, "Fordon Vera 20th" (163,386).

2nd	No. 1480	Mackay, Donald J. R., Rutherford, West Linton, "Inzievar Gem."
3rd	No. 1482	Phillips, Duncan, Gladstone Terrace, Fens, Stanley, Perthshire, "Halbeath Victoria 25th" (Ear No. 394).

The animals failing to qualify are marked thus (*).

NEW IMPLEMENTS.

The Judges, having inspected the New Implements submitted for competition, awarded the Society's Silver Medal to the following:—

J. L. & J. Ballach, Gorgie Implement Works, Edinburgh (No. 1026).—A "Universal" Expanding Disc Drill Scarifier.

STATE OF THE FUNDS

OF

THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND

As at 30th NOVEMBER 1928

	£	s.	d.	£	s.	d.
I. British Government Securities—						
£19,300 5 per cent War Stock, 1929-47, at 101¾ . .				£19,637	15	0
£1,679, 13s. 4d. 2½ per cent Consolidated Stock, at 56½ .				949	0	3
£8,000 4½ per cent Conversion Loan, at 98¼ . . .				7,860	0	0
£6,200 3 per cent Local Loans, at 65¾				4,076	10	0
£4,000 3½ per cent Conversion Loan, at 79 . . .				3,160	0	0
				£35,683	5	3
II. Heritable Bonds—						
£16,350 at 4¾ per cent				16,350	0	0
III. Railway Debenture and Preference Stocks—						
£17,050 London and North-Eastern Railway Co. 3 per cent Debenture Stock, at 58 .	£9,889	0	0			
£11,554 Do. do. 4 per cent do., at 77	8,896	11	7			
£16,105 London Midland and Scottish Railway Co. 4 per cent Debenture Stock, at 81¾	13,165	16	9			
£1,500 Do. do. 4 per cent Preference Stock, at 69¼ . . .	1,038	15	0			
£703 Southern Railway Co. 4 per cent Debenture Stock, at 82	576	9	2			
£450 Do. do. 5 per cent Preference Stock, at 90	405	0	0			
£112 Do. do. 5 per cent Guaranteed Stock, at 97	108	12	9			
				34,080	5	3
IV. Bank Stocks—						
£5,010 0 0 Royal Bank of Scotland, at 365	£18,286	10	0			
£2,218 16 5 Bank of England, at 262 .	5,813	6	2			
£1,110 13 4 Bank of Scotland, at 377 .	4,187	4	3			
2,850 "B" Shares, Barclays Bank, at 57s. .	8,122	10	0			
				36,409	10	5
V. Colonial Government Stocks—						
£2,500 Dominion of Canada Registered 3½ per cent Stock (1930-50), at 84⅜ . .	£2,109	7	6			
£2,500 New South Wales Inscribed 5 per cent Stock (1935-55), at 97¾ . .	2,443	15	0			
£2,500 Natal Inscribed 3½ per cent Stock (1914-39), at 88	2,200	0	0			
£2,000 Western Australia Inscribed 4 per cent Stock (1942-62), at 81 . .	1,620	0	0			
£2,000 New Zealand Government 5 per cent Inscribed Stock (1946), at 104¾ . .	2,095	0	0			
£1,120 Victorian Government 3½ per cent Inscribed Stock, at 78⅝ . . .	880	12	0			
				11,348	14	6
Carry forward . .				£133,871	15	5

Brought forward .		£133,871 15 5
VI. ANNUITY STOCK—		
£32 Edinburgh and Leith Corporation Gas Commissioners, at $20\frac{1}{16}$		642 0 0
VII. ESTIMATED VALUE of Buildings—		
3 George IV. Bridge	£3,100 0 0	
8 Eglinton Crescent	4,000 0 0	
	£7,100 0 0	
VIII. ESTIMATED VALUE of Furniture, Paintings, Books, &c.	1,000 0 0	
		8,100 0 0
IX. ARREARS OF SUBSCRIPTIONS considered recoverable . .		438 0 0
X. BALANCES at 30th November 1928		742 15 5
AMOUNT OF GENERAL FUNDS .		£143,794 10 10
XI. SPECIAL FUNDS—		
TWEEDDALE GOLD MEDAL FUND—		
Heritable Bond, at 4¾ per cent		£500 0 0
£100 3 per cent Local Loans Stock, at 65¾ . . .		65 15 0
Sum on Deposit Receipt with British Linen Bank . .		18 18 4
		£584 13 4
FIFE AND KINROSS PERPETUAL GOLD CHALLENGE CUP FUND—		
£268 London and North-Eastern Railway Co. 3 per cent Debenture Stock, at 58	£155 8 9	
£201 Do. do. 4 per cent First Guaranteed Stock, at 72	144 14 5	
Sum on Deposit Receipt with British Linen Bank	37 14 9	
		337 17 11
PAISLEY PERPETUAL GOLD CHALLENGE CUP FUND—		
£802 London and North-Eastern Railway Co. 3 per cent Debenture Stock, at 58	£465 3 3	
Sum on Deposit Receipt with British Linen Bank	81 19 3	
		547 2 6
RENFREWSHIRE PERPETUAL GOLD CHALLENGE CUP FUND—		
£668 London and North-Eastern Railway Co. 3 per cent Debenture Stock, at 58	£387 8 9	
Sum on Deposit Receipt with British Linen Bank	75 13 1	
		463 1 10
WILLIAM TAYLOR MEMORIAL PRIZE FUND—		
£401 London and North-Eastern Railway Co. 3 per cent Debenture Stock, at 58	£232 11 7	
Sum on Deposit Receipt with British Linen Bank	63 0 8	
		295 12 3
WILLIAM DUTHIE PERPETUAL SILVER CHALLENGE CUP FUND—		
£260 2½ per cent Consolidated Stock, at 56½ . .		146 18 0
BALANCES WITH BRITISH LINEN BANK at 30th November 1928		57 17 6
AMOUNT OF SPECIAL FUNDS . .		£2,433 3 4

DAVID WILSON, *Treasurer.*
JAMES M'LAREN, *Chairman.*
GEO JAMES GREGOR, C.A., *Auditor*

EDINBURGH, *9th January* 1929.

ABSTRACT of the ACCOUNTS of the HIGHLAND and

CHARGE.

1. **Balances** as at 30th November 1927		£2,428 3 4
2. **Arrears** of Subscriptions outstanding at 30th November 1927	£377 10 6	
Whereof due by Members who have compounded for life, and whose arrears are thereby extinguished	8 0 0	
		369 10 6
3. **Interests and Dividends**—		
(1) Interests—		
On Heritable Bonds, less Income-tax	£621 6 0	
On Railway Debenture and Preference Stocks, do.	1,387 5 2	
On Colonial Government Stocks, do.	415 7 4	
On Annuity Stock, do.	25 12 0	
On Edinburgh Corporation Loans, do.	23 2 0	
On British Government Stocks, do.	1,547 7 10	
	£4,020 0 4	
(2) Dividends on Bank Stocks, less Income-tax	1,532 18 10	
		5,552 19 2
4. **Subscriptions**—		
Annual Subscriptions	£2,659 5 0	
Life Subscriptions	762 6 0	
		3,421 11 0
5. '**Transactions**'		41 3 2
6. **Income-tax** repaid for year to 5th April 1928		1,147 17 3
7. **Receipts** from Edinburgh Show, 1927		84 5 6
8. **Receipts** from Aberdeen Show, 1928		17,836 11 8
9. **Temporary Loans** uplifted		3,000 0 0
10. **Miscellaneous**		4 5 3
Sum of Charge		£33,886 6 10

Edinburgh, 9*th January* 1929.

AGRICULTURAL SOCIETY of SCOTLAND for Year 1927-1928.

DISCHARGE.

1. **Establishment Expenses**—		
Salaries and Wages—Secretary, £1250; Chief Clerk, £400; other Clerks, £588, 13s. 4d.; Typist, £150; Messenger's Wages, £170; Cleaning, £52; Retiring Allowance to Mrs Simpson, £30; Allowance to Mrs Cowie and Family, £200		£2,840 13 4
Feu-duty, £22, 8s.; Rates and Taxes, £109, 14s. 4d.		132 2 4
Coal, Gas, and Electric Light		68 17 7
Insurances, £55, 10s. 5d.; Special Annuity Premium, £51, 3s. 9d.; Telephone and Telegrams, £37, 13s. 8d.; Repairs and Furnishings, £79, 13s. 11d.		224 1 9
		£3,265 15 0
2. **Fee** to Auditor of Accounts for 1926-1927		75 0 0
3. **Education**—		
N.D.A. Examination		106 7 3
4. **Chemical Department**—		
Fee to Chemist	£100 0 0	
Analyses for Members and Expenses	380 8 4	
		480 8 4
5. **Veterinary Department**—		
Medals to Students		20 7 0
6. **Dairy Department**—		
Expenses of Examination held at Kilmarnock	£364 16 5	
Less Entry Fees	132 6 0	
		232 10 5
7. **Society's 'Transactions'**		1,702 15 9
8. **Ordinary** Printing, £154, 12s. 3d.; Advertising, £53, 19s. 6d.; Stationery, Books, &c., £126, 15s. 5d.; Postages, £120; Bank and Post Office Charges, £10, 7s. 4d.		405 14 6
9. **Salary** to Consulting Engineer		150 0 0
10. **Grant** to S.S.P.C.A.		10 0 0
11. **Miscellaneous** Payments		216 8 3
12. **Investment** made		34 4 0
13. **Sums** lodged on Temporary Loan		3,000 0 0
14. **Expenses** in connection with Kelso Show, 1926		2 15 0
15. **Expenses** in connection with Edinburgh Show, 1927		490 6 3
16. **Expenses** in connection with Aberdeen Show, 1928—Premiums, £3465, 11s.; Medals, £63, 15s.; Expenses of Show, £12,348, 5s. 11d. (as per page 401)		15,877 11 11
17. **Premiums** and Medals for Local Shows and District Competitions		685 3 6
18. **Certificates** and Medals for Long Service		155 14 2
19. **Expenses** in connection with visiting sites for future Shows and attending Meetings		70 9 7
20. **Special Grants**		1,396 5 0
21. **New** Property at No. 8 Eglinton Crescent—Purchase price, £4000; Furnishings and Fittings, £40; Expenses, £3, 10s. 2d.		4,043 10 2
22. **Proposed Quarantine** Station		9 3 8
23. **International** Commission of Agricultural Associations, Rome		40 4 8
24. **Arrears** removed from Subscription List at 30th November 1928		174 17 0
25. **Arrears** of Subscriptions outstanding at 30th November 1928		438 0 0
26. **Balances** at 30th November 1928—		
On Account Current with Royal Bank of Scotland—		
Edinburgh Account	£453 7 5	
London Account	285 19 0	
	£739 6 5	
In hands of Secretary	3 9 0	
		742 15 5
Sum of Discharge		£33,886 6 10

DAVID WILSON, *Treasurer.*
JAMES M'LAREN, *Chairman.*
GEO. JAMES GREGOR, C.A., *Auditor.*

ABSTRACT of the ACCOUNTS

CHARGE.

		£	s.	d.
1. LOCAL SUBSCRIPTIONS		...		
2. AMOUNT COLLECTED DURING SHOW—				
	Gates	£8,861	13	3
	Grand Stand	1,329	12	11
	Catalogues and Awards	607	1	1
	Tickets sold	32	12	0
	Rent of Motor Garage and Chauffeurs' Tickets	117	0	6
	Cloak-Rooms and Lavatories	76	17	0
		£11,024	16	9
3. FORAGE SOLD		5	15	8
4. RENT OF STALLS		5,440	6	0
5. RENT OF REFRESHMENT BOOTHS		620	0	0
6. ADVERTISEMENTS IN CATALOGUE AND PREMIUM LIST		294	19	6
7. SUBSCRIPTIONS IN AID OF PREMIUMS		437	6	0
8. INTEREST ON TEMPORARY LOANS		12	17	9
9. MISCELLANEOUS		0	10	0
		£17,836	11	8

	£	s.	d.
Note. – From the balance of	£1967	19	9
Deduct Premiums undrawn at 30th November	285	19	0
	£1682	0	9
To the above balance there falls to be added sums due by Exhibitors for fitting up of stands, amounting to	200	0	0
Making the probable surplus	£1882	0	9

EDINBURGH, *9th January* 1929.

of the ABERDEEN SHOW, 1928.

DISCHARGE.

1. SHOWYARD—		
Fitting up of Showyard		£3,600 0 0
George Gordon & Co. Ltd.—Hire of Timber . . .		2,650 8 1
Rosettes, £54, 18s. 9d.; Penning Poultry and Rabbits, £37, 18s. 9d.; Horse-Shoeing, £6, 10s. 2d.; Electric Light, Fittings, and Gas, £12, 15s.; Isolation Building, £5	£117 2 8	
Railway Carriage and Cartage on Sleepers, £95, 4s. 3d.; on Office Luggage, Poultry, Rabbits, &c., £44, 0s. 9d.	139 5 0	
		256 7 8
Salary to John Reid, Showyard Erector		500 0 0
2. FORAGE and Bedding for Stock		329 16 3
3. POLICE		202 4 9
4. FIRE BRIGADE		7 14 6
5. TRAVELLING EXPENSES of Judges, Stewards, and Staff . .		419 0 6
6. HOTELS AND LUNCHEONS—		
Hotels for Directors, Stewards, and Judges .	£264 5 10	
Luncheons in Showyard for Directors, Judges, Attending Members, Members of Committee, Pressmen, Staff (including accommodation), Breakfasts, and Teas	486 3 5	
		750 9 3
7. ASSISTANTS and Attendants		650 14 7
8. MUSIC		148 0 0
9. PRINTING, Members' Badges, and Stationery . . .		1,475 2 10
10. ADVERTISING and Bill-posting		865 10 10
11. GRANTS to Mrs Traill, £5; Forestry Exhibition, £40; Bacon Pig Competition, £25		70 0 0
12. VETERINARY INSPECTION		21 0 0
13. CONCERT and Church Service for Attendants . . .		8 1 10
14. SHOW TREASURER		50 0 0
15. POSTAGES		140 0 0
16. POST OFFICE and Telephones		83 8 2
17. AMBULANCE		10 10 0
18. MISCELLANEOUS		109 16 8
		£12,348 5 11
19. PREMIUMS drawn at 30th November 1928		3,520 6 0
		£15,868 11 11
CREDIT BALANCE . .		1,967 19 9
		£17,836 11 8

DAVID WILSON, *Treasurer.*
JAMES M'LAREN, *Chairman.*
GEO. JAMES GREGOR, C.A., *Auditor.*

ABSTRACT of the ACCOUNTS of the

CHARGE.

I. **FUNDS as at 30th November 1927—**			
£3,193 London and North-Eastern Railway Company 3 per cent Debenture Stock			£2,650 0 0
£5,551, 16s. 3d. 3½ per cent Conversion Loan			4,216 18 2
£500 Queensland 3½ per cent Inscribed Stock, 1950-70			450 1 0
£412 London Midland and Scottish Railway Company 4 per cent Debenture Stock			611 10 6
£190 London Midland and Scottish Railway Company 4 per cent Guaranteed Stock			259 1 11
			£8,187 11 7
BALANCE on Account Current with Royal Bank of Scotland			198 15 0
			£8,386 6 7
II. INTEREST ON INVESTMENTS—			
On £3193 London and North-Eastern Railway Company 3 per cent Debenture Stock, for year to 30th June 1928		£95 15 10	
Less tax		19 3 2	
		£76 12 8	
On £5551, 16s. 3d. 3½ per cent Conversion Loan, for year to 1st October 1928	£194 6 2		
Less tax	38 17 2		
		155 9 0	
On £500 Queensland 3½ per cent Inscribed Stock, 1950-70, for year to 30th June 1928		17 10 0	
On £412 London Midland and Scottish Railway Company 4 per cent Debenture Stock, for year to 30th June 1928	£16 9 6		
Less tax	3 6 0		
		13 3 6	
On £190 London Midland and Scottish Railway Company 4 per cent Guaranteed Stock, for year to 30th June 1928	£7 12 0		
Less tax	1 10 4		
		6 1 8	
			268 16 10
III. INCOME-TAX repaid for year to 5th April 1928			79 17 11
SUM OF CHARGE			£8,735 1 4

EDINBURGH, *9th January* 1929.

ARGYLL NAVAL FUND for the Year 1927-1928.

DISCHARGE.

I. **Allowances** to the following eight Recipients—

R. A. Forbes (ninth year)	£40	0	0
J. H. Forbes (seventh year)	40	0	0
J. H. Dundas (sixth year)	40	0	0
C. D. Bonham-Carter (sixth year)	40	0	0
W. J. R. Campbell (fifth year)	40	0	0
M. W. G. Webster (third year)	40	0	0
C. E. Keys (third year)	40	0	0
H. C. D. MacLean (second year)	40	0	0
	£320	0	0

II. **Funds** at 30th November 1928—

£3,193 London and North-Eastern Railway Company 3 per cent Debenture Stock	£2,650	0	0			
£5,551, 16s. 3d. 3½ per cent Conversion Loan	4,216	18	2			
£500 Queensland 3½ per cent Inscribed Stock, 1950-70	450	1	0			
£412 London Midland and Scottish Railway Company 4 per cent Debenture Stock	611	10	6			
£190 London Midland and Scottish Railway Company 4 per cent Guaranteed Stock	259	1	11			
	£8,187	11	7			
Note.—The above Funds are entered at cost price. The market value at 30th November 1928 was £7086, 0s. 1d.						
Balance on Account Current with Royal Bank of Scotland	227	9	9			
				8,415	1	4
Sum of Discharge				£8,735	1	4

DAVID WILSON, *Treasurer.*
JAMES M'LAREN, *Chairman.*
GEO. JAMES GREGOR, C.A., *Auditor.*

VIEW OF RECEIPTS AND PAYMENTS

For the Year 1927-1928.

RECEIPTS.

1.	Annual Subscriptions and Arrears received		£2,415 18 6
2.	Life Subscriptions		762 6 0
3.	Interests and Dividends—		
	Interests	£4,020 0 4	
	Dividends	1,532 18 10	
			5,552 19 2
4.	'Transactions'—Sales and Advertisements		41 3 2
5.	Income-Tax repaid for year to 5th April 1928		1,147 17 3
6.	Receipts from Edinburgh Show, 1927		84 5 6
7.	Receipts from Aberdeen Show, 1928		17,836 11 8
8.	Miscellaneous		4 5 3
			£27,845 6 6

PAYMENTS.

1.	Establishment Expenses—			
	Salaries and Wages and Allowance for Cleaning		£2,610 13 4	
	Retiring Allowances		230 0 0	
	Feu-duty, Taxes, Coal, Gas and Electric Light, Insurance, Repairs and Furnishings		425 1 8	
			£3,265 15 0	
2.	Fee to Auditor of Accounts, 1926-1927		75 0 0	
3.	Education—N.D.A. Examinations		106 7 3	
4.	Chemical Department		480 8 4	
5.	Veterinary Department		20 7 0	
6.	Dairy Department		232 10 5	
7.	Society's 'Transactions'		1,702 15 9	
8.	Ordinary Printing, Advertising, Stationery, Books, and Postages		465 14 6	
9.	Salary to Consulting Engineer		150 0 0	
10.	Grant to Public Society		10 0 0	
11.	Miscellaneous Payments		216 8 3	
12.	Payments on account of Kelso Show, 1926		2 15 0	
13.	Payments on account of Edinburgh Show, 1927		490 6 3	
14.	Payments on account of Aberdeen Show, 1928—			
	1. Premiums and Medals	£3,529 6 0		
	2. Expenses	12,348 5 11		
			15,877 11 11	
15.	Premiums and Medals for Local Shows and District Competitions		685 3 6	
16.	Certificates and Medals for Long Service		155 14 2	
17.	Expenses in connection with Visiting Sites for future Shows and attending Meetings		70 9 7	
18.	Special Grants		1,396 5 0	
19.	Expenses in connection with new Property		43 10 2	
20.	Proposed Quarantine Station		9 3 8	
21.	International Commission of Agricultural Associations, Rome		40 4 8	
				25,496 10 5
	Balance of Receipts			£2,348 16 1

DAVID WILSON, *Treasurer.*
JAMES M'LAREN, *Chairman.*
GEO. JAMES GREGOR, C.A., *Auditor.*

Edinburgh, *9th January* 1929.

PROCEEDINGS AT BOARD MEETINGS.

MEETING OF DIRECTORS, 4TH APRIL 1928.

Mr JAMES M'LAREN, Cornton, Bridge of Allan, in the Chair.

Present.—*Vice-President*—Mr Falconer L. Wallace of Candacraig and Balcairn, Strathdon. *Ordinary Directors*—Mr Harry Armour; Mr Norman H. Constable; Sir James Inglis Davidson; Mr James Durno; Mr John Elliot; Mr William Elliot; Mr W. P. Gilmour; Mr William C. Hunter; Mr J. Ernest Kerr; Mr James M'Clean; Mr James M'Laren; Mr James M'Queen; Dr T. G. Nasmyth; Mr Alexander Niven; Mr William S. Niven; Mr John W. Prentice; Mr Alfred H. Reid; Mr J. P. Ross Taylor; Mr Phipps O. Turnbull. *Extraordinary Directors*—Mr William Anderson; Colonel F. J. Carruthers; Mr James Cruickshank; The Earl of Elgin and Kincardine, C.M.G.; Mr James R. Lumsden; Mr Alexander Murdoch; Bailie William Poole; Major Robert W. Sharpe; Mr G. Bertram Shields; Mr John Duthie Webster. *Treasurer*—Sir David Wilson, Bart., D.Sc. *Hon. Secretary*—Sir Hugh Shaw Stewart, Bart., C.B. *Chemist*—Dr J. F. Tocher. *Consulting Engineer*—Professor R. Stanfield.

Letters.

The following letters were submitted:—

Lady Ross of Cromarty.—Thanking the Directors for resolution of sympathy on the death of her husband, the late Brig.-General Sir Walter Charteris Ross, K.B.E., C.B., of Cromarty.

Board of Agriculture for Scotland.—Acknowledging letter regarding the elimination of undesirable bulls in Scotland, and pointing out that any scheme for the licensing of bulls, such as was indicated in the letter, would require legislative authority before it could be put into operation.

Lord Bledisloe.—Acknowledging letter regarding the intensive treatment of Grass Land in Scotland, and agreeing with the suggestion that the subject might with advantage be discussed by the Agricultural Section of the British Association at their Meeting in Glasgow in September.

Board of Agriculture for Scotland.—Forwarding copy of a Notice issued by the Minister of Labour of his intention to make a Special Order varying the previous Trade Boards (Milk Distributive) Orders.

Aberdeen Show, 1928.

Attending Members.—The following Directors were appointed as Attending Members: *Shorthorn*—The Earl of Elgin and Kincardine, C.M.G., and J. P. Ross Taylor; *Aberdeen-Angus*—Harry Armour and William Anderson; *Galloway*—James M'Queen; *Belted Galloway*—Colonel Robert W. Walker; *Highland*—James Cruickshank; *Ayrshire*—William Low and John W. Prentice; *British Friesian*—Hon. T. G. P. Corbett and Bailie James C. Booth; *Red Poll*—William C. Hunter; *Fat Cattle*—Peter Grant; *Clydesdale Stallions and Colts*—John Stewart and Alexander P. Gordon; *Clydesdale Geldings*—Captain E. F. Lumsden; *Clydesdale Mares and Fillies*—A. A. Hagart Spiers and James M'Clean; *Shires*—William Meiklem; *Hunters and Riding Ponies*—Colonel F. J. Carruthers and Major Robert

W. Sharpe; *Highland Ponies*—Sir Hugh Shaw Stewart, Bart., C.B.; *Western Island Ponies*—Brigadier-General Archibald Stirling; *Shetland Ponies*—Sir James Inglis Davidson; *Harness Classes*—Athole S. Hay; *Blackface Sheep*—Alexander Munro; *Cheviot*—Phipps O. Turnbull; *Border Leicester*—William Elliot; *Half-Bred*—Captain W. Smith Grant; *Oxford Down*—Alexander Niven; *Suffolk*—Bailie William Poole; *Shropshire, Dorset Horn, and Fat Sheep*—G. B. Shields; *Goats*—Dr T. G. Nasmyth; *Large White Pigs*—Sir Thomas Paxton, Bart., LL.D.; *Middle White*—A. H. Reid; *Large Black*—J. Duthie Webster; *Large White Ulster*—David R. Arnot; *Poultry*—Dr J. F. Tocher; *Rabbits*—The Master of Polwarth; *Honey, &c.*—Walter Wilson; *Dairy Produce*—Lieut.-Colonel Thomas W. Cuthbert, C.M.G., D.S.O.; *Wool*—John Elliot.

Local Committee.—The Secretary reported that at a Meeting of Local Directors, held at Aberdeen on 30th March, additional members of the Local Committee of Management from the Show Division had been appointed.

Aberdeen Joint Hospitals Scheme.—A letter was submitted from the Joint Secretary of the League in support of Aberdeen Joint Hospitals Scheme, applying for a stand at the Show to be used for directing the attention of members of the Society and visitors to the claims of the Joint Hospitals Scheme now being promoted. On a recommendation of the Finance Committee, it was decided, with regret, that the application could not be entertained.

Show of 1929.

The Report of the Committee appointed on 2nd February 1927 to look out for a suitable site in the Stirling Show Division, for the Show of 1929, was submitted.

The Report stated that the Committee had visited and inspected sites at Stirling, Bridge of Allan, Larbert, Alloa, and Crieff, and particulars were given regarding each of these. In the case of Bridge of Allan and Crieff, the railway facilities at the respective stations were found not to be adequate to deal with the Show traffic. At Larbert, the main difficulty was the want of a suitable access to the ground, although the railway facilities there also were believed not to be sufficient.

With regard to Stirling, the Committee had visited the King's Park on several occasions, and had had meetings with the Town Council of Stirling, at one of which were present representatives of the Stirling Golf Club and other bodies. It was evident from the first that the ground used for the Show in 1921, which extended only to 27½ acres, would not suffice for 1929. Apart from the fact that about 45 acres were now required, it was found that a portion of the level part of the ground had been used for the construction of Tennis Courts and Tennis Pavilion, and for a Putting Course.

After various negotiations, it was eventually proposed that certain levelling operations be carried out on the lower part of the King's Park to the north-west of the former site, so as to allow the Showyard to extend in that direction. The Town Council were prepared to proceed with these levelling operations provided the consent could be obtained of the Commissioners of Crown Lands, and on condition that this Society paid half the cost.

The representatives of the Stirling Golf Club, however, expressed opposition to the holding of the Show in the King's Park, and they objected to the proposed levelling of the ground. The Town Council had referred the matter to the Commissioners of Crown Lands, who would decide as to whether the proposed levelling operations could be carried out without detriment to the Park. With regard to the Golf Club's objection to the holding of the Show, that would doubtless be overruled, as there was a stipulation in their Lease that the Park must be given up when required for certain events, such as a National Agricultural Show. That, however, would not preclude the Golf Club from making a claim against the Society for disturbance, loss of revenue, damage to greens, &c.

At the invitation of the Town Council of Alloa, the Committee had visited and inspected a site at Alloa Park, the property of the Earl of Mar and Kellie. This site extended to about 67 acres, was level, and, while it was carse land, was covered with very old turf. There were several accesses to the ground by means of the carriage drives within the Alloa Park policies, and there was a separate entrance for Stock and Implements. Between the park and the main entrance lodge there was another field which would be available as a Motor Car Enclosure. The Passenger Railway Station at Alloa, which was from 7 to 10 minutes' walking distance from the ground, was used by both the L. & N. E. and L. M. & S. Railways, and the facilities at this station were stated to be ample to cope with the whole of the passenger traffic in connection with the Show. The Goods Stations of the L. & N. E. and L. M. & S. Railway Companies, which were still nearer the ground, had ample facilities for dealing with the Live Stock and Machinery traffic.

The only conditions attaching to the use of this ground for the Show were that the Society restore the Show field and Motor field in the usual manner, and pay the Grazing Rent. The Town of Alloa had kindly agreed to undertake the cost of necessary draining, and also any restoration which might be required in connection with the drives and policies. The Town of Alloa had also agreed to give a free supply of water, and for this purpose to lead a water main into the Showyard, and also to extend the gas main temporarily into the ground.

After consideration of all the circumstances, the Committee had decided to recommend that the invitation of the Town Council of Alloa be accepted, and that the Show be held in Alloa Park, so kindly placed at the disposal of the Town Council and the Society by the Earl of Mar and Kellie.

It was not without regret, the Report stated, that the Committee had found themselves unable to recommend that the Show be held in the King's Park, Stirling, where it had been held on so many former occasions. Negotiations regarding the King's Park had always been difficult on account of the fact that so many bodies had an interest in the ground. While the property was vested in the Crown, rights in the park were held by the Town Council of Stirling, the Stirling Golf Club, the Grazing Tenants, and also the War Office. Agreement with all the parties interested could doubtless have been reached, with the exception of the Golf Club. The latter body, although invited by the Town Council to state the amount of its claim for disturbance in the event of the Show being held, had declined to do so, and had expressed its renewed opposition to the holding of the Show in the King's Park. This attitude on the part of the Golf Club had prevented the Committee from arriving at any accurate estimate of the probable cost that would be incurred in connection with the site. They were convinced, however, that the amount would be considerable. Further, the continued hostility of the Golf Club, and the feeling thereby engendered in the Town and District, would certainly militate against the smooth working and complete success of the Show.

On the motion of Mr James M'Laren, Convener, seconded by Sir David Wilson, Bart., the Report and recommendation that the Show of 1929 be held in Alloa was unanimously adopted.

Hundredth Show, 1931.

The following Committee was appointed to consider the preliminary arrangements, including the question of the site and special features, prizes, &c., for the Hundredth Show to be held in 1931, and report: Colonel F. J. Carruthers, Mr James Durno, Earl of Elgin and Kincardine, Mr James R. Lumsden, Mr Alexander Munro, Mr Alexander Murdoch, Dr T. G. Nasmyth, Major Robert W. Sharpe, with the Chairman, Treasurer, and Honorary Secretary, *ex officii*.

Proposed Quarantine Station.

A Minute of Meeting of Special Committee, dated 4th April, was submitted and approved.

The Minute stated that further correspondence had taken place with the London, Midland and Scottish Railway with regard to the acquisition of some additional accommodation adjoining the proposed site near Princes Dock. From this it appeared that the accommodation contemplated could be acquired on suitable terms, although the Society would require to arrange later with the tenants if it were desired to purchase the erections on the ground. It was hoped that, at an early date, plans of the proposed buildings, with specifications and details of cost, would be ready to be forwarded to the Empire Marketing Board.

Rules for Ploughing Matches.

The Secretary reported that, at the District Meeting at Aberdeen on 2nd March, a question had been raised with regard to the Regulations governing the award of this Society's Medals at Ploughing Matches. It was pointed out that, in many cases, these Regulations were not complied with, and it was thought desirable that they should be revised and brought up to date.

It was agreed to remit the matter to the Implements Committee for consideration and report.

Finance.

A Minute of Meeting of Committee, dated 4th April, was submitted and approved.

The Minute dealt with the following matters:—

New Premises.—The Secretary had reported the conclusion of the agreement for purchase of 8 Eglinton Crescent at the figure mentioned at last Meeting—viz., £4000. Feu-duty, £29, 3s. 5d. Term of entry and price payable, 15th May 1928.

Rowett Research Institute.—It was recommended that a grant of £1000 be given to the Rowett Research Institute towards the establishment of an Experimental Stock Farm in connection with the Institute.

Scottish National Milk and Health Association.—It was recommended that a grant of £50 be given to this Association for the ensuing year.

It was further recommended that Mr W. P. Gilmour be reappointed a representative of the Society on the Council of the Association, and that Mr Alexander Murdoch be nominated as a second representative in place of Colonel W. T. R. Houldsworth, who now represents the Scottish Milk Agency, Limited.

Association for the Preservation of Rural Scotland.—It was recommended that Mr Athole S. Hay be reappointed as the Society's representative to the Association for the Preservation of Rural Scotland, and that the Society subscribe a sum of £2, 2s., as a constituent body, for the ensuing year.

MEETING OF DIRECTORS, 2ND MAY 1928.

Mr JAMES M'LAREN, Cornton, Bridge of Allan, in the Chair.

Present.—Ordinary Directors—Mr Harry Armour; The Hon. T. G. P. Corbett; Lieut.-Colonel Thomas W. Cuthbert, C.M.G., D.S.O.; Sir James Inglis Davidson; Mr James Durno; Mr W. P. Gilmour; Mr George Grant; Mr Peter Grant; Mr J. Ernest Kerr; Mr James M'Laren; Mr Robert Macmillan; Mr James M'Queen; Mr William Meiklem; Mr Alexander Munro; Dr T. G. Nasmyth; Mr Alexander Niven; Mr William S. Niven; Mr John W. Prentice; Mr Alfred H. Reid; The Hon. Walter T. H. Scott; Mr J. P. Ross Taylor; Mr Phipps O. Turnbull. *Extraordinary Directors*—Colonel F. J. Carruthers; Mr Alexander Forbes; Captain W. Smith Grant; Mr James R. Lumsden; Mr Alexander Murdoch; Bailie William Poole; Major Robert W. Sharpe; Mr G. Bertram Shields: Mr A. A. Hagart Speirs. *Treasurer*—Sir David Wilson, Bart., D.Sc. *Hon. Secretary*—Sir Hugh Shaw Stewart, Bart., C.B. *Chemist*—Dr J. F. Tocher. *Consulting Engineer*—Professor R. Stanfield.

The late Mr W. Home Cook, C.A.

Before proceeding with the business of the Meeting, the Chairman referred in sympathetic terms to the death, which occurred with unexpected suddenness on 23rd April, of Mr William Home Cook, C.A., Auditor and Show Treasurer to the Society. Mr Cook, he said, was appointed Auditor of the Society in April 1885, and so had completed forty-three years' service in that capacity. During the greater part of that period he also acted as Show Treasurer, and, as such, was in regular attendence at the annual Shows.

While his duties as Auditor were performed with characteristic care and efficiency, he would probably be remembered by members of the Board more for the invaluable services which he rendered as a member of the Committee of Finance. His opinion on all matters pertaining to the finances of the Society was constantly sought, and the wisdom of his counsel was invariably recognised and his advice acted upon by the Committee. At the Annual Shows his organisation of the Treasurer's Department was a model of completeness, while his great kindliness of disposition and unfailing courtesy under all circumstances secured for him the esteem and regard of both Directors and Officials.

A resolution of regret and sympathy was adopted, the members present upstanding, and the Secretary was instructed to forward a copy thereof to the relatives of the deceased.

The late Mr William Reith.

The Chairman also referred, with deep regret, to the death of a member of the Board, Mr William Reith, Kennorty. He said that while Mr Reith's connection with the Board as an Extraordinary Director was of short duration, he was well known to many of them as a breeder and exhibitor of Clydesdale Horses. In business and farming circles in the north of Scotland he was held in high esteem, and his death was a loss to the Society which they deeply deplored.

A resolution of regret and sympathy was adopted, the members present upstanding, and the Secretary was instructed to forward a copy thereof to the widow and family of the deceased.

Letters.

The following letters were submitted:—

Scottish National Association of Pig Breeders.—Thanks for free stand and grant of £25 towards expenses of Bacon Pig Competition at Aberdeen Show.

Lord Provost High, Dundee.—A letter was submitted from Lord Provost High of Dundee, inviting the Society to hold the Show at Dundee in 1930, and offering an excellent site and generous financial support. It was pointed out that the Society had already decided that the Show of 1930 should be held in the Dumfries division, provided a suitable site was available and satisfactory financial and other arrangements could be made. The letter was remitted to the Committee at present dealing with the question of the site of the Hundredth Show in 1931, for consideration and report.

Aberdeen Show, 1928.

Local Committee.—The Secretary reported that, at a Meeting of Committee held at Aberdeen of 27th April, additional Attending Members had been appointed on the various classes of stock.

Rowett Research Institute.

On the Motion of Sir David Wilson of Carbeth, Bart., it was unanimously agreed to confirm the recommendation adopted at last Meeting, that a Grant of £1000 be given to the Rowett Research Institute towards the establishment of an experimental stock farm.

Scottish National Milk and Health Association.

On the Motion of Sir David Wilson, Bart., it was unanimously agreed to confirm the recommendation that a Grant of £50 be given to this Association for the ensuing year.

Animal Diseases Research Association.

A letter was submitted from the Animal Diseases Research Association, applying for a renewal, or an increase, of the Grant of £200 for the ensuing year. Sir David Wilson, Bart., Convener, explained that this application had been considered by the Finance Committee, which recommended that a sum of £200 be given for the current year. He moved in terms of the Committee's recommendation, and this was agreed to.

St Kilda.

A letter was submitted from the Missionary at St Kilda, making application, on behalf of the Islanders, for a supply of flour and oatmeal, such as had been sent in recent years. The Secretary explained that this letter had been considered by the Finance Committee, which recommended that a supply of 20 bolls of oatmeal and 50 bolls of flour be forwarded by the s.s. *Hebrides*, which sailed on the 21st May. The approximate cost was £90, and it was proposed to place the order with Messrs Robert Walls & Sons, Kerse Mills, Stirling.

On the Motion of Sir David Wilson, Bart., the recommendation of the Finance Committee was agreed to.

Implements Committee.

A Minute of Meeting of Committee, dated 2nd May, was read and approved.

The following matters were dealt with :—

Turnip Topping and Tailing Machines.—In accordance with the remit from the Board on 1st February, the Committee had considered the suggestion that the Society hold a trial of improved Turnip Topping and Tailing Machines. After full consideration and discussion, and in view of the fact that the Committee were not aware of any recent improvements in these machines since the last trial, it was decided not to recommend that any trial be held in the meantime.

Regulations for Ploughing Matches.—The Committee also considered the remit from the Board at last Meeting to revise the regulations governing the award of the Society's Medal at Ploughing Competitions. It was decided to recommend that the following alterations be made on these regulations, viz.—(1) That the ploughing should be at the rate of not more than 14 hours per imperial acre on light land, and 18 hours on heavy or stony land, instead of 10 hours and 14 hours respectively, as at present required ; (2) That there must be at least twelve ploughs in actual competition for the medal, *i.e.*, in the particular class for which the medal is offered.

Proposed Quarantine Station.

A Minute of Meeting of Special Committee, dated 2nd May, was read.

The Minute stated that plans and specifications of the proposed buildings at the Quarantine Station at Glasgow had been submitted by the Society's Consulting Engineer. These made provision for 31 boxes for cattle, and 10 boxes which could be used either for sheep or for pigs. The plans were so arranged that either the cattle or sheep and pig section could be added to readily if required. It was decided that the plans should be completed and forwarded to the Empire

Marketing Board, with a view to securing their approval of these and of the proposed site, before proceeding to obtain definite estimates of the cost.

It was further agreed to request the Empire Marketing Board and the Ministry of Agriculture to take steps to ascertain from the various Colonies and Dominions whether they would be prepared to accept stock from Scotland which has passed through the proposed station.

Colonel F. J. Carruthers, Convener, moved approval of the Minute, and in the course of an explanatory statement, said the Committee were disappointed to learn of the small advantage which was being taken of the Quarantine Station recently opened in London. In view of the reports received, he thought it would be wise to proceed slowly with the Scottish Station, and in the meantime request the Ministry of Agriculture to obtain the information referred to in the last paragraph of the Minute.

The Minute was approved.

Shire Classes.

A letter was submitted, dated 10th April, from the Secretary of the Clydesdale Horse Society, regarding the offer of prizes at the Aberdeen Show for produce, bred in Scotland, from registered Shire Stallions. The Council of the Clydesdale Horse Society were of opinion that the offer of prizes for such a class was distinct breed propaganda, and they expressed the hope that a class of this kind would not again be included in the premium list of the Society's Shows. After Mr William Meiklem, Bonnochy Park, Kirkcaldy, had spoken in support of the representation, Mr Alexander Murdoch, East Hallside, submitted a full statement in explanation of the Society's action in introducing the class referred to. He suggested that the letter be remitted to the Shows Committee for consideration in November, when drawing up the prize list for next year's Show, and this was agreed to.

Show of 1930.

On the Motion of Colonel F. J. Carruthers, it was remitted to the following Special Committee to approach the owners of the ground on which the Dumfries Show was held in 1922, with a view to ascertaining if an arrangement could be come to for the use of the same ground in 1930, and to report,—Colonel F. J. Carruthers, Convener ; Mr Robert Macmillan ; Mr James M'Queen ; Mr W. P. Gilmour ; and Mr James M'Clean.

Hour of Board Meeting.

Some discussion took place, on a suggestion by Lieut.-Colonel T. W. Cuthbert, C.M.G., D.S.O., that the hour of the Board Meeting be changed from 1.30 to 2 o'clock. This, it was stated, would make a great difference to members from the North, who would thus be enabled to travel to Edinburgh, attend the Meeting, and return home on the same day.

It was eventually agreed, on the Motion of the Chairman, that the matter be remitted to the General Purposes Committee, with Lieut.-Colonel Cuthbert added, for consideration and report.

Animal Breeding Committee.

On an invitation from the University of Edinburgh, it was unanimously decided to appoint the Hon. T. G. P. Corbett, Rowallan, Kilmarnock, as the Society's representative on the Animal Breeding Committee being set up by the University Court on taking over the Department of Research in Animal Breeding.

Hundredth Show, 1931.

A Minute of Meeting of Special Committee, dated 2nd May, was read and approved.

The Committee reported that a preliminary Meeting had been held that day, at which, unfortunately, three of the members were unable to attend. The unanimous feeling of those present, however, was that it was desirable that the whole question of the site of the Hundredth Show in 1931 should be reconsidered. The matter would be further dealt with at a Meeting next month, when it was hoped that the representatives of all the districts on the Committee would be present.

Auditor to the Society.

It was remitted to the Finance Committee to bring forward a recommendation, at next Meeting, for filling the vacant office of Auditor.

MEETING OF DIRECTORS, 6TH JUNE 1928.

Mr JAMES M'LAREN, Cornton, Bridge of Allan, in the Chair.

Present.—Ordinary Directors—Mr Harry Armour; Mr Norman H. Constable; The Hon. T. G. P. Corbett; Lieut.-Colonel Thomas W. Cuthbert, C.M.G., D.S.O.; Sir James Inglis Davidson; Mr James Durno; Mr John Elliot; Mr George Grant; Mr Peter Grant; Mr William C. Hunter; Mr J. Ernest Kerr; Mr William Low; Mr James M'Clean; Mr James M'Laren; Mr Robert Macmillan; Mr James M'Queen; Mr William Meiklem; Mr Alexander Munro; Dr T. G. Nasmyth; Mr Alexander Niven; Mr William S. Niven; Sir Thomas Paxton, Bart., LL.D.; Mr John W. Prentice; Mr Alfred H. Reid; Mr J. P. Ross Taylor; Mr Phipps O. Turnbull. *Extraordinary Directors*—Mr William Anderson; Colonel F. J. Carruthers; Mr James Cruickshank; The Earl of Elgin and Kincardine, C.M.G.; Mr Alexander Forbes; Captain E. F. Lumsden; Mr James R. Lumsden; Mr Alexander Murdoch; Bailie William Poole; Major Robert W. Sharpe; Mr A. A. Hagart Speirs; Mr John Stewart. *Chemist*—Dr J. F. Tocher. *Consulting Engineer*—Professor R. Stanfield.

Letters.

The following letters were submitted:—

Mr John Cook, W.S.—Thanking the Directors for resolution of sympathy on the death of his uncle, the late Mr William Home Cook, C.A.

Highland Reel and Strathspey Society.—Thanking the Directors for the privilege of meeting in the Society's Hall during the forty-seven years of the Highland Reel and Strathspey Society's existence.

Proposed Reduction in Railway Freights.

On an invitation from the Board of Agriculture for Scotland, it was agreed to appoint the following representatives of the Society to a Conference on 8th June, on the subject of the proposed reduction in railway freights on selected Agricultural commodities: The Earl of Elgin and Kincardine, C.M.G.; Sir James Inglis Davidson; Bailie William Poole; and Mr J. P. Ross Taylor.

Hundredth Show, 1931.

Letters were submitted from the Lord Provost of Perth, dated 4th and 9th May, in which it was stated that if the Directors should decide upon holding the Show at Perth, the Corporation would do all in its power to assist in making the Show a success. These letters were remitted to the Sites Committee for consideration.

Special Prizes for Cows and Heifers.

A suggestion by the Hon. T. G. P. Corbett, Rowallan, with regard to an offer of Special Prizes for the best Dairy Cow or Heifer, in milk or in calf, from Grade A. (Tuberculin Tested) or Certified Herds, was remitted to the Shows Committee.

Aberdeen Show, 1928.

A Minute of Meeting of Shows Committee, dated 6th June, was submitted.

The Minute dealt with the following matters:—

Imperial Farmers' Tour.—In connection with the proposed Imperial Farmers' Tour, members of which were to be in Aberdeen at the date of the Show, it was recommended that Visitors' Badges, giving free admission to the Show at all times and to the Directors' Enclosure in the Grand Stand, be given to each of the members of the Tour, and that they be offered tea and refreshments on the Wednesday afternoon at 4.30 P.M.

State of Showground.—It was recommended that a small deputation, consisting of the Local Directors, should be appointed to wait upon the Lord Provost of Aberdeen, with a view to pointing out to him the unsatisfactory state of the surface of the Showground.

Mr Alexander Forbes, Convener, moved approval of the Minute.

Sir Thomas Paxton, Bart., moved, as an amendment, that the overseas visitors be given a luncheon in the Showyard instead of tea and refreshments, and this was seconded by Bailie William Poole.

Colonel F. J. Carruthers seconded the motion for approval of the Minute.

On a vote being taken, the Minute was approved by 16 votes to 7.

General Arrangements.—The Secretary reported that the work on the Showyard was well advanced. The amount of space let for the Exhibition of Implements, &c., was well up to the average. The entries of Live Stock, which closed that day, would no doubt be less than last year, but the principal breeds would be well represented.

Animal Diseases Research Association.

On the Motion of the Chairman, it was unanimously agreed to confirm the recommendation adopted at last Meeting, that a grant of £200 be given for the current year to the Animal Diseases Research Association.

'*Transactions.*'

A Minute of Meeting of Publications Committee, dated 6th June, was read and approved.

The Minute recommended payments to writers of articles in the current volume of 'Transactions,' amounting to £151.

National Diploma in Dairying.

A Minute of Meeting of Education Committee, dated 6th June, was submitted and approved.

The Minute referred to negotiations which had taken place between the National Agricultural Examination Board and the British Dairy Farmers' Association as to the possibility of combining into one the National Diploma in Dairying and the Dairy Diploma granted by the British Dairy Farmers' Association. The Education Committee unanimously recommended that the proposed amalgamation be approved of by the Board of Directors. A full statement of the conditions under which the amalgamation would take place is given in the Report to the General Meeting of the Society of this date (p. 437).

Agricultural Credits Bill.

A letter was submitted from the Secretary of State for Scotland, transmitting copy of the Agricultural Credits Bill then before Parliament, and stating that he would be glad to be furnished with the views of the Society as to the applicability of the Scheme embodied in the Bill to the conditions of Scottish Agriculture.

The matter was remitted to the Finance and Law Committee for consideration and report.

Dumfries Show, 1930.

Colonel F. J. Carruthers, reporting on behalf of the Special Committee appointed at last Meeting, gave particulars of the negotiations which the Committee had had with the proprietors of the ground on which the Show was held in 1922.

Some discussion followed with regard to the terms on which the ground could be obtained, and it was eventually agreed that the matter be left in the hands of the Committee to complete their negotiations and report to a later Meeting.

Appointment of Auditor.

A Minute of Meeting of Finance Committee, dated 15th May, was submitted and approved.

The Minute recommended the appointment of Mr George James Gregor, C.A., 8 York Place, Edinburgh, as Auditor and Show Treasurer to the Society.

Finance.

A Minute of Meeting of Finance Committee, dated 6th June, was submitted and approved.

The Minute dealt with the following matters:—

St Kilda Fund.—The Secretary reported that a consignment of flour and oatmeal had been despatched to St Kilda per the s.s. *Hebrides* on 21st May. The total cost, including freight, insurance, &c., was £92, 14s. 4d.

New Premises.—It was recommended that the Special Committee which had dealt with the purchase of the new premises be reappointed, with powers, to deal with all matters connected with the fitting-up of the new premises, so as to make them suitable for the Society's purposes. This would include the employment of an architect, the purchase of necessary furniture, restoration of pictures, cataloguing of books, and arrangements for a Caretaker.

MEETING OF DEPUTATION OF DIRECTORS HELD IN SHOWYARD, ABERDEEN, 25TH JULY 1928.

Mr JAMES M'LAREN, Cornton, Bridge of Allan, in the Chair.

Present.—*Vice-President*—Mr Falconer L. Wallace of Candacraig and Balcairn, Strathdon. *Ordinary Directors*—The Hon. T. G. P. Corbett; Lieut.-Col. Thomas W. Cuthbert, C.M.G., D.S.O.; Mr James Durno; Mr John Elliot; Mr William Elliot; Mr W. P. Gilmour; Mr George Grant; Mr Peter Grant; Mr William C. Hunter; Mr J. Ernest Kerr; Mr William Low; Mr James M'Clean; Mr Robert Macmillan; Mr James M'Queen; Dr Thomas G. Nasmyth; Mr John W. Prentice; Mr Alfred H. Reid; The Hon Walter T. H. Scott; Mr J. P. Ross Taylor; Mr Phipps O. Turnbull. *Extraordinary Directors*—Mr William Anderson; Bailie James C. Booth; Colonel F. J. Carruthers; Mr James Cruickshank; The Earl of Elgin and Kincardine, C.M.G.; Captain E. F. Lumsden; Mr James R. Lumsden; Mr Alexander Murdoch; Bailie William Poole; Mr G. Bertram Shields; Mr A. A. Hagart Speirs; Mr John Stewart; Colonel Robert W. Walker; Mr John Duthie Webster; Mr Walter Wilson. *Honorary Secretary*—Sir Hugh Shaw Stewart, Bart., C.B. *Consulting Engineer*—Professor R. Stanfield.

Protests.

The Secretary reported that no Protests had been lodged.

Precepts.

The Chairman was authorised to sign the Precepts for the prizes awarded at the Aberdeen Show.

The late Mr R. C. Todd, Second Clerk.

The Secretary reported that Mr Robert C. Todd, Second Clerk to the Society, had died on 10th June. It was unanimously agreed to enter in the Minutes an expression of the very deep regret with which the Directors learned of Mr Todd's death, and their sincere sympathy with his widow in her sad bereavement.

It was decided that Mr Todd's salary continue to be paid to his widow each month, up to and including the month of October next.

The Secretary was empowered to make such arrangements for temporary assistance as were necessary prior to the next Ordinary Meeting in November.

MEETING OF DIRECTORS, 7TH NOVEMBER 1928.

Mr JAMES M'LAREN, Cornton, Bridge of Allan, in the Chair.

Present.—Ordinary Directors—Colonel F. J. Carruthers; The Hon. T. G. P. Corbett; Sir James Inglis Davidson; Mr James Durno; Mr W. P. Gilmour; Mr George Grant; Mr Peter Grant; Mr William C. Hunter; Mr James R. Lumsden; Mr James M'Laren; Mr James M'Queen; Mr William Meiklem; Mr Alexander Munro: Mr Alexander Murdoch; Dr T. G. Nasmyth; Mr Alexander Niven; Mr Robert Park; Mr John W. Prentice; Mr Alfred H. Reid; Mr John Robson, jun.; The Hon. Walter T. H. Scott; Brig.-Gen. Archibald Stirling; Mr J. P. Ross Taylor; Mr Thomas Templeton; Mr Phipps O. Turnbull; Colonel R. W. Walker; Mr Archibald Whyte. *Extraordinary Directors*—Mr A. Y. Allan; Mr William Carrick; The Earl of Elgin and Kincardine, C.M.G.; Mr John Elliot; Mr William Elliot; Mr James Gray; Mr J. Ernest Kerr; Mr William Low; Mr Peter M'Intyre; Mr William M'Laren; Mr Robert Macmillan; Provost A. P. Moir; Bailie William Poole; Mr Alexander Robertson; Major Robert W. Sharpe; Mr A. A. Hagart Speirs. *Treasurer*—Sir David Wilson, Bart., D.Sc. *Chemist*—Dr J. F. Tocher. *Consulting Engineer*—Professor R. Stanfield.

The late Mr J. J. Moubray of Naemoor.

Before proceeding with the business of the Meeting, the Chairman referred in sympathetic terms to the death of Mr John James Moubray of Naemoor, a Vice-President of the Society. Mr Moubray, he said, had long been associated with the Society as a breeder and successful exhibitor of Shorthorn Cattle, whilst, on several occasions, he had occupied the office of an Extraordinary Director, and later that of Vice-President. Possessed of a striking personality and most genial disposition, his was a familiar figure at the Society's Annual Shows. As a landowner he was esteemed for his practical and sympathetic interest in the welfare of his tenants, as a man of affairs his outstanding integrity commanded the widest respect, and as a sportsman and a scholar he earned much regard and affection. Through his death the country had lost not only one of its most noted Shorthorn breeders, but an outstanding figure in Scottish Agriculture.

A Minute of regret and sympathy was submitted and adopted, the Members present upstanding, and the Secretary was instructed to forward a copy to Mrs Moubray and the family of the deceased.

The late Mr Harry Armour, Niddry Mains.

The Chairman also referred with deep regret to the death of Mr Harry Armour, Niddry Mains, which had occurred with startling suddenness on the day following the conclusion of the recent Show at Aberdeen. Mr Armour, he said, had been an Ordinary Director during the past four years, and, as such, officiated as an Attending Member at the Show. He was one of the best-known farmers in West Lothian, and took an active part in all movements calculated to promote the welfare of Agriculture. He was keenly interested in Agricultural Education, and, as a member of many public bodies, rendered valuable and unsparing service to the community. His tragic death had evoked the deepest sympathy throughout the wide circle of his friends and associates.

A Minute of regret and sympathy was submitted and adopted, the Members present upstanding, and the Secretary was instructed to forward a copy to Mrs Armour and the family of the deceased.

Chairman of the Board for 1928-1929.

On the Motion of Colonel F. J. Carruthers of Dormont, Lockerbie, seconded by Sir David Wilson of Carbeth, Bart., Killearn, Mr James M'Laren, Cornton, Bridge of Allan, was unanimously re-elected Chairman of the Board for the ensuing year.

Mr James M'Laren, in accepting office, thanked the Directors for the honour they had again conferred upon him, and for the manner in which they had supported him during the year in which he had held office.

Representatives on other Bodies.

The following were appointed representatives of the Society on the Boards of the undernoted Institutions for the ensuing year—viz.: *National Agricultural and Dairy Examination Boards*—The Earl of Elgin and Kincardine, C.M.G., Broomhall, Dunfermline, and Mr William Low of Balmakewan, Laurencekirk, to fill the vacancies caused by the retirement of Sir Hugh Shaw Stewart, Bart., C.B., and Mr G. Bertram Shields. *Edinburgh and East of Scotland College of Agriculture*—John Stirton, Secretary, Highland and Agricultural Society. *West of Scotland Agricultural College*—Sir Hugh Shaw Stewart of Greenock and Blackhall, Bart., C.B., Ardgowan, Inverkip. *Aberdeen and North of Scotland College of Agriculture*—Dr J. F. Tocher, 41½ Union Street, Aberdeen. *Royal (Dick) Veterinary College*—Dr Thomas G. Nasmyth, Canaan Lodge, Canaan Lane, Edinburgh. *Glasgow Veterinary College*—Mr Alexander Murdoch, East Hallside, Hallside, Lanarkshire. *Scottish Milk Records Association*—Mr W. P. Gilmour, Balmangan, Kirkcudbright; Mr Alexander Munro of Leanach, Culloden Moor, Inverness; Mr Alexander Murdoch. *Standing Committee of Management of Scottish Plant Registration Station*—Sir David Wilson, Bart.; Mr James Elder, Athelstaneford Mains, Drem; Mr G. Bertram Shields, for five years from 1st January 1926. *Association for the Preservation of Rural Scotland*—Mr Athole S. Hay of Marlefield, Roxburgh. *Scottish National Milk and Health Association*—Mr W. P. Gilmour; Mr Alexander Murdoch.

Resignation of Honorary Secretary, Sir Hugh Shaw Stewart, Bart., C.B.

A letter from Sir Hugh Shaw Stewart of Greenock and Blackhall, Bart., C.B., resigning the office of Honorary Secretary of the Society, was submitted.

The Chairman, in formally moving acceptance of the resignation, said he was sure he expressed the feelings of every member of the Board when he said it was with great regret they had received Sir Hugh Shaw Stewart's resignation of the office of Honorary Secretary. He might also say that they would have been unanimous in requesting him to reconsider his decision had they not been assured that the step which he had now taken was final. They would agree with him when he said that Sir Hugh's resignation of the post of Honorary Secretary was a distinct loss to the Society.

He further moved that the Directors place on record their appreciation of the valuable services rendered by Sir Hugh to the Society, not only during the four years in which he had filled the office of Honorary Secretary, but during the sixteen years in which he had been a member of the Board, including the two years in which he was Chairman.

Throughout that long period he had been unremitting in his efforts to promote in every way the interests of the Society, and it was difficult to express in fitting terms their sense of gratitude for the time and attention which he had devoted to the Society's affairs. They could only express the hope that the severing of Sir Hugh's official connection with the Society would in no way interrupt the cordial and intimate relations which had always existed between the family of Shaw Stewart and the National Agricultural Society.

On the Motion of the Chairman it was agreed to remit to the Officer-Bearers' Committee to bring forward the name of a gentleman to fill the vacancy in the office of Honorary Secretary, and also to fill the vacancy in the office of Vice-President caused by the death of the late Mr J. J. Moubray.

Letters.

The following letters were submitted:—

Mrs R. C. Todd, Edinburgh.—Thanks for Minute of sympathy on the death of her husband, the late Mr R. C. Todd, Second Clerk to the Society.

Animal Diseases Research Association.—Thanks for renewal of Grant of £200 for the current year.

Mr George J. Gregor, C.A., Edinburgh.—Accepting office as Auditor and Show Treasurer of the Society.

The Hannah Dairy Research Institute, Scotland.—A letter was submitted from Sir Donald MacAlister, Chairman of the Joint Committee of Management of the Institute, making application for a Grant of £250 per annum, for three years, towards the expenses of an Investigation into the occurrence of Tuberculosis in Dairy Herds. The application was remitted to the Science Committee for consideration and report.

Aberdeen Show, 1928.

Accounts.—The Secretary reported that a summary of the Accounts of Aberdeen Show had that day been submitted to the Finance Committee. These accounts showed a probable credit balance of about £1877.

The Secretary pointed out that while the number of persons who paid for admission, over 75,000, had not been exceeded since the great Show in Edinburgh in 1919, the drawings had been surpassed at several Shows within the last circuit. The explanation was that at Aberdeen the larger attendances were recorded on the Thursday and Friday. That, however, was not to be regarded as unsatisfactory, because the main object of the Society was to encourage the largest possible number of people to visit the Show and benefit by the exhibition of live stock and implements.

List of Awards.—The List of Awards at Aberdeen Show was laid on the table.

Alloa Show, 1929.

Date of Show.—On a recommendation of the Shows Committee, it was agreed that the date of the Show be fixed for Tuesday, 23rd July, and three following days.

Judges.—The following were appointed a Selection Committee to draw up panels of Judges for consideration at next Meeting: Colonel F. J. Carruthers, Mr N. H. Constable, Mr James Durno, Mr John Elliot, Mr William Elliot, Mr W. P. Gilmour, Mr George Grant, Mr William C. Hunter, Mr J. E. Kerr, Mr Robert Macmillan, Mr Alexander Murdoch, Mr Thomas Templeton, with the Chairman, Treasurer, and Hon. Secretary, *ex officii*.

Forage Committee.—The following Committee was appointed to make arrangements for the supply of forage, and report to the Board: Mr James Durno (Convener), Mr William Carrick, Mr John Elliot, Mr Alexander Forbes, Mr W. P. Gilmour, Mr Peter M'Intyre, Mr James M'Laren, Mr William M'Laren, Mr Alexander Murdoch, Mr John W. Prentice, Mr A. H. Reid, and Mr Phipps O. Turnbull.

Show Contracts.—It was remitted to the following Special Committee, with powers, to arrange the contract for timber, and other contracts in connection with the Showyard: Mr James R. Lumsden (Convener), Colonel F. J. Carruthers, Mr James Durno, Mr John Elliot, Mr Alexander Forbes, Mr James M'Laren, Mr W. S. Niven, Mr A. H. Reid, Brig.-General Archibald Stirling, Colonel Robert W. Walker, Mr Archibald Whyte, and Professor R. Stanfield.

Hotel Accommodation and Catering in Showyard.—It was remitted to the Chairman of the Board, the Chairman of the Shows Committee, the Convener of the Local Committee, the Steward of Catering, and the Secretary, to make the necessary arrangements.

Police.—It was remitted to the Secretary to make the necessary arrangements for police supervision in the Showyard.

Music.—The Secretary was instructed to make the necessary arrangements for music in the Showyard.

Forestry Exhibition.—It was agreed that, as usual, space be granted to the Royal Scottish Arboricultural Society for an exhibition of timber, and also a grant of £40 towards the expenses of the exhibition.

Prize List and Regulations.—The Secretary stated that the Shows Committee had met on 6th November, and had revised the Premium List and Regulations for the Alloa Show. It was agreed that, as usual, their report be printed and issued for consideration in detail at next Meeting of the Board.

Alcoholic Drinks.—A Minute of Meeting of Shows Committee, dated 6th November, was read and approved.

The Minute stated that the Secretary had submitted a report giving the results of observations which had been made with regard to the observance by exhibitors at the Aberdeen Show of the Rule prohibiting the giving of alcoholic drinks to visitors. From this report it appeared that thirteen Standholders were reported to have contravened the Rule. It was recommended that the matter be remitted to the following Special Committee to consider as to the procedure to be adopted in the circumstances, to communicate with or interview the parties concerned, and to report: Colonel F. J. Carruthers, Sir James Inglis Davidson, Mr William C. Hunter, Mr Alexander Murdoch, Mr James R. Lumsden, Mr James M'Laren, and Sir David Wilson, Bart.

Special Prizes.—A large number of Special Prizes were accepted, and votes of thanks accorded to the donors.

Single Judging.

A letter was submitted from the Secretary of the Joint Committee of Scottish Shorthorn Breeders, stating that at a Meeting of the Committee held in the Show-yard at Aberdeen, it was unanimously agreed that, so far as the judging of Shorthorns was concerned, single judging, having had a two years' trial, had proved unsatisfactory, and the Committee resolved that this view be laid before the Directors of the Highland and Agricultural Society, with a strong representation that the appointment of two Judges be reverted to.

Mr Alexander Murdoch moved that the system of single judging be continued. That system, he said, was adopted two years ago after very careful consideration, and so far as he was aware there were no more complaints under the system of single judging than there had been under the former system. It appeared to him to be a retrograde step on the part of the Society to go back to double judging.

Mr Alexander Munro of Leanach seconded, and Colonel F. J. Carruthers and Mr J. P. Ross Taylor spoke in support.

After some discussion, Mr James Gray moved, as an amendment, that so far as the Clydesdale section was concerned, they should revert to the former system of appointing six Judges, three being drawn for males, and three for females, on the morning of the Show.

Mr William Meiklem seconded.

On a vote being taken, the motion that the system of single judging be continued was carried by a large majority.

Mr Robert Macmillan suggested that where there were very large Classes, two Judges might be appointed, either to act alternately, or one to judge the males and the other the females.

The Secretary pointed out that it would be quite competent, at the Meeting in December, to move that two Judges be appointed for any particular section, these, however, to act independently.

Hundredth Show, 1931.

A Minute of Meeting of Special Committee, dated 6th November, was read and approved.

The Minute stated that letters had been submitted from the Town Clerk of Inverness and the Secretary of the Inverness-shire Farmers' Society, forwarding copy resolutions adopted at a Public Meeting held in Inverness on 13th July last, and inviting the Directors to receive a deputation in support of those resolutions. Letters were also submitted from the Town Clerk of Edinburgh and from the Lord Provost of Perth.

The Committee recommended that the Directors receive the deputation from Inverness on the afternoon of Tuesday, the 4th December, at 3.30 P.M., at the conclusion of the Meeting for the appointment of Judges.

On the general question of the Hundredth Show of 1931, the Committee were unanimously of the opinion that the Show should be held on a very large scale, with largely increased prize-money, and many additional and special features. They were also agreed that, if it were decided that the Show should be held at Inverness, it would require to be held on a considerably smaller scale.

Glasgow Veterinary College.

An application from the Glasgow Veterinary College for a further Grant towards the funds of the College was remitted to the Finance Committee for consideration and report.

Dentition of the Pig.

A letter was submitted from Principal O. Charnock Bradley, Royal (Dick) Veterinary College, forwarding an Interim Report on the investigation carried out at the College into dentition as an indication of the age of the pig.

The report stated that over 180 specimens had been received and examined. While this number was obviously far from sufficient on which to base conclusions, it seemed highly probable that it would ultimately be found necessary to make modifications in the Tables at present used as a guide by those who wished to determine the age of a given animal.

It was agreed to thank Principal Bradley for the Report.

Electric Tractor.

A letter, dated 9th August, from Major Andrew M'Dowall of Mungoswells, Drem, was read, requesting the Society to make application to the Development Commission, through the Board of Agriculture, for a Grant of £3000 to be applied in the development of an Electric Tractor invented by him.

After discussion it was decided, on the motion of Mr P. O. Turnbull, seconded by Mr A. H. Reid, that the matter be remitted to the Implements Committee for consideration and report.

Proposed Quarantine Station.

The Secretary reported that, on 28th June, a letter was received from the Empire Marketing Board expressing the view that it would be in the interests both of the Empire Marketing Board and the Society to suspend operations in regard to the proposed Glasgow Station until a later date, when further experience would have been gained, and time would have allowed the Overseas Governments of the Empire to assure themselves of the rigid precautions provided against the infection of animals passing through the London Station.

The views of the Society were asked as to whether it would be desirable and possible to come to some informal arrangement in regard to an option on the site provisionally selected by the Society. The Board further expressed their appreciation of the efforts of the Society in these preliminary negotiations, and said they would be happy to reimburse any expense incurred in the preparations so far made.

As a result of further negotiations it was found that the L. M. & S. Railway Company would be prepared to grant an option on the proposed site at Princes Dock for three years at a price of £25, and the Empire Marketing Board agreed that the option should be obtained on those terms.

It was understood that a formal agreement on these lines had been concluded, or was on the point of being concluded.

Railway Freights.

A letter was submitted from the Board of Agriculture for Scotland, giving a list of the various commodities within the five main groups of traffics—viz., Manures, Feeding-Stuffs, Live Stock, Potatoes, and Milk—on which it was suggested that relief should be given in respect of railway charges.

Mr J. P. Ross Taylor gave a short report of the proceedings at the Conference on the subject, which was held at the offices of the Board of Agriculture on 8th June. In reply to a question, he stated it was now too late to make further representations on the subject.

Sheep Worrying by Dogs.

The Secretary reported that a Conference on this subject, convened by the Board of Agriculture for Scotland, was held on 11th October. The Society was represented at the Conference by Mr Robert Macmillan and Mr Peter M'Intyre. The views of the Society, as expressed in the Minute of Meeting of Directors of 30th November 1927, were laid before the Conference.

Mr Peter M'Intyre, in supplementing the report, said that, if the Dog Act were administered as it ought to be, they would have little cause for complaint. They were assured by Sir Robert Greig that the Chief Constables throughout the country were making an endeavour to enforce the Order as fully as they could possibly do. It was a serious matter for the owners of sheep throughout the country, and hundreds, if not thousands, of pounds had been lost by sheep farmers, especially those near industrial centres. They should continue to press for some improvement.

New Premises.

A Minute of Meeting of Special Committee, dated 6th November, was submitted and approved.

Following a discussion as to the installation of a lift, it was decided that Members of the Board should have an opportunity of visiting and inspecting the new premises on Tuesday, the 4th December, between eleven and one o'clock.

Finance.

A Minute of Meeting of Committee, dated 7th November, was submitted and approved.

The Minute dealt with the following matters:—

Investigation into Milk Fever.—It was recommended that a grant of £50 be given towards the expenses of an Investigation being carried out at the Royal (Dick) Veterinary College, by Professor J. Russell Greig and Professor Dryerre, into the cause of Milk Fever.

Joint Committee of Live Stock Breeders.—Payment was recommended of a sum of £10, 10s., which the Society agreed to guarantee on 7th June 1922 towards the expenses of the Joint Committee in employing Solicitor and Counsel to appear before the Railway Rates Tribunal with a view to safeguarding the interests of the Live Stock Breeders of Great Britain. It was further recommended that the Society become affiliated to the Joint Committee, the annual subscription for Affiliated Socities being £1, 1s., and that Mr William C. Hunter be nominated as the Society's representative to the Joint Committee.

MEETING OF DIRECTORS, 5TH DECEMBER 1928.

Mr JAMES M'LAREN, Cornton, Bridge of Allan, in the Chair.

Present.—*Vice-President*—Sir Iain Colquhoun of Colquhoun and Luss, Bart. *Ordinary Directors*—Colonel F. J. Carruthers; Mr Norman H. Constable; The Hon. T. G. P. Corbett; Sir James Inglis Davidson; Mr James Durno; Mr W. P. Gilmour; Mr George Grant; Mr Peter Grant; Mr William C. Hunter; Mr James R. Lumsden; Mr James M'Clean; Mr James M'Laren; Mr James M'Queen; Mr Alexander Munro; Mr Alexander Murdoch; Dr T. G. Nasmyth; Mr Robert Park; Mr John W. Prentice; Mr Alfred H. Reid; Mr John Robson, jun.; The Hon. Walter T. H. Scott; Brig.-Gen. Archibald Stirling; Mr J. P. Ross Taylor; Mr Phipps O. Turnbull; Colonel R. W. Walker. *Extraordinary Directors*—Mr A. Y. Allan; Mr William Carrick; The Earl of Elgin and Kincardine, C.M.G.; Mr John Elliot; Mr William Elliot; Mr Alexander Forbes; Mr J. Ernest Kerr; Mr Peter M'Intyre; Mr William M'Laren; Mr Robert Macmillan; Mr William S. Niven; Bailie William Poole; Mr Alexander Robertson; Major Robert W. Sharpe; Mr A. A. Hagart Speirs. *Treasurer*—Sir David Wilson, Bart., D.Sc. *Chemist*—Dr J. F. Tocher. *Consulting Engineer*—Professor R. Stanfield.

The late Lieut.-Colonel G. J. Fergusson-Buchanan.

Before proceeding with the business of the Meeting, the Chairman made sympathetic reference to the death of Lieut.-Colonel G. J. Fergusson-Buchanan of Auchentorlie, who was at one time an Ordinary Director of the Society. Colonel Fergusson-Buchanan, he said, was for many years a well-known figure and regular exhibitor at the Society's Shows. He was keenly interested in Agricultural affairs, but more especially in the breeding of Ayrshire Cattle. Various departments of Agricultural Research received his cordial support, notably the experiments relating to the Eradication of Bracken carried out by him and by the West of Scotland Agricultural College at Auchentorlie.

A Minute of regret and sympathy was submitted and adopted, the members present upstanding, and the Secretary was instructed to forward a copy to Mrs Fergusson-Buchanan and the family of the deceased.

The late Mr William J. Kippen of Westerton.

The Chairman also referred, with regret, to the death of Mr William J. Kippen of Westerton, an Extraordinary Director of the Society. Mr Kippen, he said, was elected a representative of Dumbartonshire, but, unfortunately, had not taken his seat at that Board. He was well known and highly respected in Dumbartonshire, where he took a leading part in the public work of the County, and displayed a keen interest in Agricultural affairs.

A Minute of regret and sympathy was submitted and adopted, the members present upstanding, and the Secretary was instructed to forward a copy to the relatives of the deceased.

Letters.

The following letters were submitted:—

Mrs Moubray, Naemoor.—Expressing thanks for resolution of sympathy on the death of her husband, the late Mr J. J. Moubray.

Mrs Armour, Niddry Mains.—Conveying thanks for Minute of sympathy on the death of her husband, the late Mr Harry Armour.

Board of Agriculture for Scotland.—Transmitting Memorandum embodying the conclusions arrived at regarding the groups of Agricultural Traffics selected for reduction of Railway Freights in connection with the proposed De-rating Scheme.

Vacancies on Board.

A Minute of Meeting of Office-Bearers' Committee, dated 5th December, was submitted and approved.

The Minute recommended—

Vice-President.—That Mr J. Ernest Kerr of Harviestoun, Dollar, be appointed a Vice-President of the Society, in room of the late Mr J. J. Moubray of Naemoor.

Extraordinary Directors.—That Mr Robert M'Gee, Blackfaulds, Sauchie, Alloa, be appointed an Extraordinary Director to fill the vacancy caused by the appointment of Mr Kerr as a Vice-President; and that Mr W. Betts Donaldson of Auchineden, Blanefield, be appointed to fill the vacancy caused by the death of Mr William J. Kippen of Westerton.

Honorary Secretary.

On a recommendation by the Office-Bearers' Committee, it was unanimously agreed to nominate Colonel F. J. Carruthers of Dormont, Lockerbie, to the General Meeting in January, for appointment as Honorary Secretary of the Society, in place of Sir Hugh Shaw Stewart, Bart., C.B., who had resigned.

Alloa Show, 1929.

A Report of the Shows Committee of 6th November, which had been printed and circulated, was submitted and considered in detail.

The following matters arising out of the Report were dealt with—

Rule 30.—It was agreed that the Rule affecting Cattle which have been exhibited as Fat Stock at any Show be retained.

Ayrshire Cattle.—It was agreed that the Class for "Heifer, born in or after 1926, in calf, and due to calve before 1st December of the year of the Show," be altered to "Heifer, born on or after 1st June 1926," &c.

Hunters.—It was agreed that three Saddle Classes be added as follows:—

Mare or Gelding, born before 1925, to carry 13 stone and over	£15	£10	£5
Mare or Gelding, born before 1925, to carry under 13 stone	£15	£10	£5
Mare or Gelding, born in 1925	£15	£10	£5

Draught Geldings in Harness.—It was agreed that a class be provided for Draught Geldings in Harness, with prize-money, £10, £5, £3, and £2, the Class to be cancelled if a minimum number of seven entries is not received.

Half-Bred Sheep.—It was decided that, instead of the proposed Class for Tups of any age, there be a class for Shearling Tups—the Class for Aged Tups being deleted.

Large White Ulster Pigs.—A letter was submitted from the Breed Society offering to contribute £10 towards the Prize Fund, and suggesting the following classification, which was approved:—

Boar, born on or after 1st November 1928 . . .	£8	£4	£2
Sow, born in 1928	£8	£4	£2
Three Breeding Pigs, born on or after 1st January 1929 .	£6	£3	£1

Grade "A" (T.T.) or Certified Herds.—The Report of the Sub-Committee, with regard to the offer of Special Prizes for Cows from Grade "A" (Tuberculin Tested) or Certified Herds, was submitted. The Rule relating to Veterinary Certificates was amended to read as follows: "Each entry must be accompanied by a Veterinary Certificate from a County Veterinary Officer certifying that the animal entered is from a licensed herd," and the Report was thereafter approved.

The Report of the Shows Committee, with the foregoing emendations, was then adopted.

The following Minute of Meeting of Shows Committee, dated 5th December, was submitted and approved.

The Minute dealt with the following matters:—

Alcoholic Drinks.—The Committee had received a report by a Sub-Committee regarding contraventions of the Rule prohibiting the giving of alcoholic drinks to visitors at stands at Aberdeen Show, and had approved the report for transmission to the Board.

The Sub-Committee were satisfied that the evidence with regard to breaches of the regulation by two firms was conclusive, and these firms, on being communicated with, did not deny the truth of the averment, although they put forward certain explanations.

With regard to the other firms mentioned in the report by the private inquiry officers, the Sub-Committee considered that there did not appear to be sufficiently conclusive evidence on which to take action. The main difficulty in securing such evidence was that the Society's representatives had no right to demand access to enclosed portions of Exhibitors' stands.

The Committee accordingly recommended—(1) That the two firms named should be debarred from exhibiting at the Society's Show for one year; (2) That the following addition be made to Rule 103: "With a view to the enforcement of this Rule, the Society reserves the right of unrestricted access, by its authorised representatives, to all Exhibitors' stands during the Show."

Stock Judging Competitions.—It was recommended that the Classes of Stock to be judged be the same as at Aberdeen.

Scottish Women's Rural Institutes.—A request from the Central Council of the S.W.R.I., that the Society receive a deputation on the matter of Women's Rural Institute exhibits at the Show, had been considered, and it was recommended that the following be appointed a Committee to meet the deputation: Mr James M'Laren, Sir David Wilson, Bart., Colonel F. J. Carruthers, Earl of Elgin and Kincardine, C.M.G., Dr T. G. Nasmyth, Mr James R. Lumsden, and the Convener of the Local Committee.

Convener of Local Committee.—On the Motion of the Chairman, Mr J. Ernest Kerr of Harviestoun, Dollar, was unanimously appointed Convener of the Local Committee of Management.

Appointment of Judges.—The Secretary reported that, at a Meeting of the Board in Committee on 4th December, Judges had been appointed for the various Classes of Stock. These were being communicated with, and after replies were received the List of Judges would be published in the Press.

Special Prizes.—A number of Special Prizes were accepted, and votes of thanks accorded to the donors.

Science.

A Minute of Meeting of Science Committee, dated 5th December, was read and approved.

The Minute dealt with the following matters:—

Hannah Dairy Research Institute.—In accordance with a remit from the Board, the Committee had considered the letter from Sir Donald MacAlister, Chairman of the Joint Committee of the Hannah Dairy Research Institute, making application for a grant of £250 per annum, for three years, towards the expenses of an investigation into the occurrence of tuberculosis in Dairy Herds.

After careful consideration, the Committee had agreed to recommend that a reply be sent to the effect that the Society is prepared to treat the Dairy Research Institute on the same footing as the corresponding Institutes in Aberdeen and Edinburgh—viz., the Rowett Research Institute, and the Animal Breeding Research Department. In the case of these bodies, the Society had given grants towards the endowment and equipment of the Institutes. It was not prepared to give annual grants for specific investigations, the giving of which would imply the Society's approval of the investigations proposed.

Discoloration of Wool.—A report had been submitted by Dr Tocher on an investigation he had made regarding the nature of the colouring matter contained in certain dips, and the possibility of evolving a practical method of removing the dye-stuff without damaging the wool. A Summary of the Report was communicated by Dr Tocher to the Meeting.

The Committee recommended that Dr Tocher be asked to conduct an investigation on the Bloom Dips at present on the market, and to report on the nature and composition of the colouring matter present in these dips, with the object of determining whether or not the use of Bloom Dips affected the quality of wool to an extent which rendered it advisable to discontinue their use.

Hundredth Show, 1931.

A Minute of Meeting of the Hundredth Show Sites Committee, dated 4th December, was read.

The Minute stated that the Special Committee had carefully considered the remit from the Board regarding the arrangements for the Hundredth Show to be held in 1931, including the question of the site, and the special features, prizes, &c., and had decided to recommend that—

(1) To celebrate the occasion of the Hundredth Show in 1931, the Society hold a Show on an unusually large scale, representative of all the principal breeds of stock in Scotland.

(2) The Show be held at a centre most convenient for Exhibitors, Members of the Society, and the general public.

(3) Provided a suitable site is available, and satisfactory arrangements can be made, the Show be held at Perth.

(4) In the event of the General Meeting in January next deciding that the Show be held at Inverness, the Show be held there on the usual scale.

The Secretary read communications from various Agricultural Societies and Farmers' Clubs in the North, forwarding resolutions in favour of the Show being held at Inverness.

Colonel F. J. Carruthers of Dormont moved approval of the Minute of the Committee, and this was seconded by Mr Alexander Murdoch, East Hallside.

Mr Alexander Munro of Leanach moved, as an amendment, that the Minute be not approved, and the Hundredth Show in 1931 be held at Inverness.

This was seconded by Mr John Elliot, Balnakiel.

On a vote being taken, 20 voted for the amendment, and 14 for the motion, there being accordingly a majority of 6 in favour of Inverness.

Dr T. G. Nasmyth then moved, as a further amendment, that the Show be held in Edinburgh, and this was seconded by Bailie William Poole.

On a show of hands, only 8 supported Dr Nasmyth's amendment, which was accordingly defeated by a large majority.

The Chairman stated that the decision arrived at in favour of Inverness would be submitted to the Anniversary General Meeting on 9th January.

Commercial Cattle Breeding.

A Minute of Meeting of Shows Committee, dated 7th November, was submitted and approved.

The Minute stated that the Committee had received a report of a Sub-Committee regarding the proposal that the Society give grants for the encouragement of the breeding of good Commercial Cattle, and had approved the Report for transmission to the Board. In the Report, the Sub-Committee stated they were of opinion that, since the date of the remit, the position of matters had changed. A movement was developing amongst Breed Societies and other bodies directed towards eliminating inferior or badly-bred bulls. The Sub-Committee were of opinion that if this were done, the object the Directors had in view would be attained. They had accordingly agreed to suggest that consideration of the proposed scheme of grants be postponed in the meantime.

Mr William C. Hunter of Arngask referred to the representations made, in March last, to the Ministry of Agriculture and Fisheries and the Board of Agriculture for Scotland, urging that the necessary Parliamentary powers be obtained to institute a system of compulsory Government Licence for Bulls, similar to that now in force in Ireland. He said that, as nothing had been done, the Society should renew these representations, and this was agreed to.

Damage by Deer.

A letter was read from the Board of Agriculture for Scotland with regard to a Conference on the above subject to be held at the Board's Offices that day at 3 P.M., and inviting the Society to appoint representatives to attend.

It was agreed to request Mr Robert Macmillan, Mr Peter M'Intyre, and Mr John Elliot to represent the Society at the proposed Meeting.

Scottish Agricultural Organisation Society.

On the recommendation of the Finance Committee, it was unanimously agreed that a grant of £100 be again given to the Scottish Agricultural Organisation Society for the year 1929.

Milk Fever in Cows.

On the motion of Sir David Wilson, Bart., it was unanimously agreed to confirm the recommendation adopted at last Meeting, that a grant of £50 be given towards the expenses of an Investigation being carried out at the Royal (Dick) Veterinary College by Professor J. Russell Greig and Professor Dryerre into the cause of Milk Fever.

" *Scottish Championship Show.*"

The Secretary said he wished to make an explanation in regard to the Show held two weeks ago in the Waverley Market, Edinburgh. It was organised by what was described as the Edinburgh Dairy and Horse Association, and was called the fourth annual Scottish Championship Show. From inquiries he received, it was apparent there was an impression abroad that the Highland and Agricultural Society was in some way connected with the Show, or that it had extended to it its patronage or support. This impression had been doubtless strengthened by paragraphs—obviously inspired—which had appeared in certain papers, and in which the Show was referred to as the local equivalent of the " Highland." Those who visited the Show, or took part as exhibitors, had doubtless formed their own conclusions, but he wanted to state in the clearest manner possible that their Society had no connection whatever with this so-called Championship Show.

New Premises.

Further consideration was given to the question of installing a lift at the Society's new premises at 8 Eglinton Crescent, a decision having been deferred at last meeting in order that Members of the Board might have an opportunity of visiting and inspecting the premises, and the position of the proposed lift.

William C. Hunter moved that a lift be installed, and this was seconded by Mr Alexander Murdoch.

Mr William Elliot, Lanark, moved, as an amendment, that a lift be not provided, and this was seconded by Dr T. G. Nasmyth.

On a vote being taken, 8 voted for the amendment, and 6 for the motion, so that the proposal to install a lift was negatived.

Finance.

A Minute of Meeting of Finance Committee, dated 5th December, was submitted and approved.

The Minute dealt with the following matters :—

Glasgow Veterinary College.—An application had been considered from the Glasgow Veterinary College for a further grant towards the Endowment Fund of the College. The Committee recommended that a grant of £500 be given to the fund, this grant, however, to be subject to the proviso that the £10,000 aimed at was raised within one year from 1st January 1929.

Agricultural Credits (*Scotland*) *Bill.*—In accordance with a remit from the Board, the Committee had considered the draft of the Agricultural Credits (Scotland) Bill, and submitted certain observations with regard thereto. It was recommended that, before forwarding these to the Secretary for Scotland, they be submitted to the Society's Law Agents for revision.

Officer and Caretaker.—The Secretary reported the death, on 18th November, of the Society's Caretaker, Mr Andrew Brown. It was agreed to recommend the appointment, as Officer and Caretaker, of Mr Charles John Balfour, who for some time had acted as a temporary clerk in the Society's Offices. The salary to be paid to Mr Balfour would commence at £150 per annum, with cleaning allowance of £1 per week, and the usual free house, coal, and light.

MEETING OF DIRECTORS, 9TH JANUARY 1929.

Mr **James M'Laren**, Cornton, Bridge of Allan, in the Chair.

Present.—President—The Earl of Mar and Kellie, K.T., Alloa Park. *Vice-President*—Mr J. E. Kerr of Harviestoun. *Ordinary Directors*—Mr Norman H. Constable ; Hon. T. G. P. Corbett ; Sir James Inglis Davidson ; Mr James Durno ; Mr W. P. Gilmour ; Mr George Grant ; Mr Peter Grant ; Mr William C. Hunter ; Mr James R. Lumsden ; Mr James M'Laren ; Mr William Meiklem ; Mr Alexander Murdoch ; Dr T. G. Nasmyth ; Mr Robert Park ; Mr John W. Prentice ; Mr Alfred H. Reid ; Hon. Walter T. H. Scott ; Mr J. P. Ross Taylor ; Mr Thomas Templeton ; Mr Phipps O. Turnbull ; Colonel Robert W. Walker ; Mr Archibald Whyte. *Extraordinary Directors*—Mr A. Y. Allan ; Mr John Elliot ; Mr William Elliot ; Mr Alexander Forbes ; Mr William Low ; Mr Peter M'Intyre ; Mr W. M'Laren ; Mr Robert Macmillan ; Mr William S. Niven ; Bailie William Poole ; Major R. W. Sharpe ; Mr A. A. Hagart Speirs. *Treasurer*—Sir David Wilson, Bart., D.Sc. *Chemist*—Dr J. F. Tocher. *Consulting Engineer*—Professor R. Stanfield.

The late Mr James Rodger, Bridge of Allan.

Before proceeding with the business of the Meeting, the Chairman referred in sympathetic terms to the death of Mr James Rodger, Bridge of Allan, who had been an Ordinary Director of the Society from 1922 to 1926. Mr Rodger, he said, was well known in Agricultural circles throughout the country on account of his long association with the management of the Keir Estates. He had a wide knowledge of farm live-stock, and his services as a Judge were in demand both at local and national shows. He took a deep interest in Agricultural Education, and as a member of many public bodies rendered valuable services to the community.

A resolution of sympathy and regret was submitted and approved, the members present upstanding, and the Secretary was instructed to forward a copy to Mrs Rodger and the family of the deceased.

Letters.

The following letters were submitted :—

Mr James Sword.—Expressing thanks for resolution of sympathy on the death of his nephew, the late Mr William J. Kippen.

Mrs Fergusson-Buchanan.—Expressing thanks for resolution of sympathy on the death of her husband, the late Lt.-Col. G. J. Fergusson-Buchanan.

Sir Hugh Shaw Stewart, Bart., C.B.—Acknowledging excerpt Minute, engrossed on vellum, with reference to his resignation of post of Honorary Secretary.

Hundredth Show, 1931.

A letter was read from the Caithness Agricultural Society, communicating a resolution passed by the Committee of Management of that Society in favour of the Hundredth Show in 1931 being held in Inverness.

A letter was read from the Town Council of Perth, extending a cordial invitation to hold the Hundredth Show in Perth. The letter stated that should the invitation be accepted the Council would place at the disposal of the Society, for the purposes of the Show, the whole of the South Inch.

Finance.

A Minute of Meeting of Finance Committee, dated 9th January, was read and approved.

The Minute stated that the Accounts for the year 1927-1928, as prepared by the Society's Auditor, had been submitted and approved, and signed by two members of the Finance Committee and by the Auditor.

Alloa Show, 1929.

Stewards.—The Stewards of the various departments were appointed as follows: *Cattle*—Mr J. Ernest Kerr and Mr W. P. Gilmour; *Horses*—Mr Alexander Murdoch and Mr George Grant; *Sheep, Goats, Pigs, and Wool*—Mr R. Macmillan and Mr N. H. Constable; *Grand Stands*—Mr James M'Queen and Major Robert W. Sharpe; *Forage*—Mr James Durno and Mr John Prentice; *Gates*—Mr Alexander Forbes and Mr William S. Niven; *Implements*—Mr William Low and Mr Phipps O. Turnbull; *Poultry and Rabbits*—Mr James R. Lumsden; *Catering and Honey, &c.*—Mr William Elliot.

Veterinary Inspector.—Mr George C. Inglis, M.R.C.V.S., Alloa, was appointed Veterinary Inspector for the Show on the usual conditions.

Minute of Shows Committee.—A Minute of Meeting of Shows Committee, dated 9th January, was submitted and approved.

The Minute dealt with the following matters:—

Suffolk Sheep.—On a request from the Northern Area Suffolk Sheep Society, it was recommended that permission be granted to hold an Auction Sale of Suffolk Rams during the Show on the Thursday afternoon.

Goats.—It was recommended that animals entered for the Milking Competition must be entered for both the Quality and the Quantity Competitions.

Horse-Shoeing.—A letter had been received from the Secretary of the Local Branch of the National Farriers' and Blacksmiths' Association at Alloa, agreeing to co-operate in carrying through the Horse-Shoeing Competition. In view of this undertaking it was recommended that the Competition be proceeded with, and the following Directors were nominated to act upon the Committee of Management: Mr John W. Prentice, Mr William M'Laren, and Mr Robert M'Gee.

Grand Stand.—It was recommended that the charge for the reserved portion of the Grand Stand, on the Thursday afternoon, be reduced from 5s. to 4s.

Special Prizes.—Special Prizes were accepted, and votes of thanks accorded to the donors.

Electric Tractor.

A Minute of Meeting of Implements Committee, dated 9th January, was submitted and approved.

The Minute stated that, in accordance with the remit from the Board, the Committee had considered the letter from Major Andrew M'Dowall, Mungoswells, Drem, in which he requested the Society to make application to the Development Commission, through the Department of Agriculture for Scotland, for a grant for the development of an Electric Tractor invented by him. As the Committee had official information that there was no prospect of a grant being given for this purpose by the Development Commission, they had decided to recommend that no action be taken in the matter. The Committee, however, stated that they would be prepared to recommend that a trial of Electric Tractors be held so soon as it was known that such tractors were available for trial.

Agricultural Credits (Scotland) Bill.

A Minute of Meeting of Finance Committee, dated 9th January, was submitted and approved.

The Minute stated that the Report on the Agricultural Credits (Scotland) Bill, which was submitted at last Meeting on 5th December, had now been revised by the Society's Law Agents. The Report, as amended, and which appears below, was approved for transmission to the Board.

PART I.

LONG TERM CREDITS.

The Directors approve generally of this part of the Bill, subject to the proviso that the rate of interest to be charged on the loans to the borrowers is satisfactory. The Bill provides that these loans shall be repayable by equal yearly or half-yearly instalments of capital and interest spread over a period not exceeding sixty years, or repayable on such other terms as may be authorised by the Memorandum and Articles of the Agricultural Security Company to be formed for the purpose of working Part I. If the borrowers can be assured that the loans can be repaid by instalments over a long period of years at a favourable rate of interest, the Directors are of opinion that such a scheme will be welcomed.

PART II.

AGRICULTURAL SHORT TERM CREDITS.

With regard to Part II. of the Bill, it is noticed that it is proposed to introduce a security for advances by banks to Co-operative Societies of a kind entirely unknown to the law of Scotland. The Co-operative Societies referred to are defined in Section 9 of the Bill as being registered under the Industrial and Provident Societies Acts and having for their principal object the provision and sale of agricultural requisites to its members, or the sale of agricultural produce purchased from its members. At present, a security cannot by the law of Scotland be created on moveable property in the hands of the borrower. It is now proposed by the Bill that stocks of merchandise from time to time owned by the Co-operative Societies referred to may be charged by them as security for advances made to them by Banks. Somewhat elaborate provisions are made with regard to the nature and effect of these securities—*e.g.*, it is provided that the charge is to impose an obligation upon the Societies in the event of their selling any property affected by the charge to pay the proceeds to the Bank (unless otherwise agreed). It is also provided that where the proceeds are not so paid, the Bank will not be entitled to recover such proceeds unless the person receiving the proceeds knew that the payment was in breach of the Society's obligation. If the provisions of the Bill introducing this new security are enacted by Parliament, they will introduce a novelty in the law of Scotland.

The object of the Bill, which is described to be the making of loans for agricultural purposes on favourable terms, is one with which the Directors of this Society are in agreement, but the method for attaining this end formulated in Part II. cannot be regarded, the Directors think, as otherwise than an experiment, which may possibly in practice create new difficulties which do not exist at present in the way of loans being obtained from Banks in the ordinary way for agricultural purposes. It is conceivable that the proposed enactment may interfere with the credit which would be given to the Co-operative Societies by parties other than the Bank holding the proposed security, and it is possible that the Banks would regard that security as not so good as what they can now obtain from individual borrowers. Such Societies as are now in existence do not, as a rule, hold important stocks of merchandise, and have not warehouses wherein to store them. If, however, the Government is satisfied that a scheme on the lines proposed will in practice work well, it is suggested for consideration whether the Societies should not be empowered to grant a floating charge over their whole assets similar to the charge which is effected by Debentures of Companies registered in England. Such a charge would include the debts due to the Co-operative Societies by their customers, and these debts might be their main assets. This, of course, would also be a novelty in the law of Scotland, but not more than what is already proposed in Part II. of the Bill.

Show of 1930.

A letter was submitted from the Town Clerk of Dundee, in which he stated that the Magistrates of Dundee were desirous of appearing before the Directors with a view to discussing the possibility of the 1930 Show being held in that city.

Mr Alexander Murdoch, East Hallside, Glasgow, pointed out that it had already been agreed, by the Members and Directors, that the Show of 1930 be held in the Dumfries Show Division, provided a suitable site was available and satisfactory financial and other arrangements could be made. Until the Directors received the report of a Committee with regard to a site, it would be premature to receive a deputation from any other district.

This view was unanimously agreed to.

The Secretary stated that, up to the present, a Committee, consisting of the Local Directors in the Dumfries Division, had been conducting inquiries as to the terms on which a suitable site could be obtained. He mentioned that Colonel F. J. Carruthers, who was unable to be present that day, had stated in a letter that he thought the time had now arrived when the usual course should be adopted, and a Special Sites Committee, consisting of Directors outside the Show Division, be appointed to deal with the whole matter, and report.

It was unanimously agreed that this course be followed, and a Special Sites Committee was appointed as follows: Mr John Elliot, Mr William Elliot, Mr Alexander Murdoch, Major R. W. Sharpe, Mr J. P. Ross Taylor, Mr Thomas Templeton, with the Chairman, Honorary Secretary, and Treasurer, *ex officii*.

Glasgow Veterinary College.

On the motion of Sir David Wilson, Bart., it was unanimously agreed to confirm the recommendation that a grant of £500 be given towards the Endowment Fund of the Glasgow Veterinary College, this grant to be subject to the proviso that the £10,000 aimed at was raised within one year from 1st January 1929.

Scottish Agricultural Organisation Society.

On the motion of Sir David Wilson, Bart., it was also unanimously agreed to confirm the proposed grant of £100 to the Scottish Agricultural Organisation Society for the year 1929.

MEETING OF DIRECTORS, 6TH FEBRUARY 1929.

Mr JAMES M'LAREN, Cornton, Bridge of Allan, in the Chair.

Present.—Ordinary Directors—Mr Norman H. Constable; Hon. T. G. P. Corbett; Mr James Durno; Mr W. P. Gilmour; Mr George Grant; Mr Athole S. Hay; Mr William C. Hunter; Mr James R. Lumsden; Mr James M'Clean; Mr James M'Laren; Mr William Meiklem: Mr Alexander Munro; Mr Alexander Murdoch; Dr T. G. Nasmyth; Mr Alexander Niven; Mr Robert Park; Mr John W. Prentice; Mr Phipps O. Turnbull. *Extraordinary Directors*—Mr A. Y. Allan; Mr William Carrick; Mr John Elliot; Mr William Elliot; Mr James Gray; Mr William Low; Mr Robert M'Gee; Mr Peter M'Intyre; Mr W. M'Laren; Mr Robert Macmillan; Mr William S. Niven; Bailie William Poole; Mr Alexander Robertson; Major R. W. Sharpe. *Treasurer*—Sir David Wilson, Bart., D.Sc. *Hon. Secretary*—Colonel F. J. Carruthers of Dormont. *Chemist*—Dr J. F. Tocher. *Consulting Engineer*—Professor R. Stanfield.

Illness of His Majesty the King.

The Secretary reported the receipt of the following reply from Her Majesty the Queen to the message of sympathy regarding the King's illness sent from the Anniversary General Meeting.

"THE EARL OF MAR AND KELLIE, EDINBURGH.

> "The Queen sincerely thanks you for your message, and would ask you to convey to the Members of the Highland and Agricultural Society of Scotland, Her Majesty's deep appreciation of their expression of loyalty and devotion and of their fervent good wishes for the King's early restoration to health."

Letter.

The following letter was submitted:—

Mrs Rodger, Bridge of Allan.—Expressing thanks for resolution of regret and sympathy on the death of her husband, the late Mr James Rodger.

Science.

A Minute of Meeting of Committee, dated 6th February, was submitted and approved.

The Minute dealt with the following matters:—

Schedule of Unit Values.—The Schedule of Unit Prices of Manures and Feeding-Stuffs for the current year had been revised, and it was recommended that it be printed and issued as usual.

Values of Unexhausted Manures and Feeding-Stuffs.—It was recommended that the Table of Values of Unexhausted Manures and Feeding-Stuffs be re-issued, and that it be remitted to Dr Tocher, Consulting Chemist, to revise it in terms of the new Unit Values.

Alloa Show, 1929.

A Minute of Meeting of Shows Committee, dated 6th February, was submitted and approved.

The Minute dealt with the following matters:—

Free Stands.—Free stands and free sites at the Show were recommended to be granted, according to a list submitted.

Horse-Shoeing.—It was recommended that the following Practical Shoeing Smiths be invited to act as Judges of Horse-Shoeing, along with the Society's Veterinary Inspector: Mr James Hall, Halfway House, Cardonald, and Mr William Stephen, Balmellie Street, Turriff.

It was also recommended that the following Local Blacksmiths be appointed to act on the Committee of Management, along with the three Directors appointed at last Meeting: Mr William Thomson, 9 Menstrie Road, Tullibody: Mr Robert Gray, Rose Cottage, Clackmannan; and Mr James Mustard, Kincardine-on-Forth.

Scottish Women's Rural Institutes.—It was recommended that the application from the Central Council of the Scottish Women's Rural Institutes for a free stand similar to the Society's Rural Industries Shed, be granted for the current year, a condition being imposed that the stand be used for exhibitions, demonstrations, and sale of goods, but not for a competition on lines similar to the Rural Industries Competition.

It was also recommended that the notice on the Rural Industries stand should have the sub-heading added "and S.W.R.I. Competitions."

Showground.—A Minute of Agreement between the Earl of Mar and Kellie, the Alloa Town Council, and the Society, with regard to the use of Alloa Park and approaches for the Show, had been submitted, and it was recommended that the Secretary be authorised to sign it on behalf of the Society.

District Competition Rules.—In view of a question having arisen regarding the effect of Rule 6, which reads as follows: "When it is agreed to hold the General Show of the Society in any district, no provincial Show shall be held in that district in the three months immediately preceding the date of the General Show," it was recommended that the following addition be made to the Rule: "Any infringement of this rule shall entail cancellation of the grant."

Stock Judging Competition.—It was recommended that the closing date of entries for the Stock Judging Competition be fixed for Thursday, 20th June.

Veterinary Inspection of Horses.—Mr Alexander Murdoch, Steward of Horses, had raised a question with regard to the admission to the Showyard of Horses suffering from cold. At the Aberdeen Show last year, horses from the Royal Show suffering from a severe cold had been admitted, with the result that the infection spread to other exhibits housed in the same section. It was recommended that it be remitted to the following Sub-Committee to draw up a Rule dealing with the matter, to be inserted in the Show Regulations: Mr Alexander Murdoch; Mr George Grant; Mr James R. Lumsden; Colonel F. J. Carruthers; and Mr James M'Laren.

Forage.—A Minute of Meeting of Forage Committee, dated 6th February, was read and approved.

The Minute stated that the Committee recommended the acceptance of the offer by the Forage Supply Co. Ltd., Springfield Mills, Leith, to supply forage for the Alloa Show.

Timber Contract.—A Minute of Meeting of Show Contracts Committee, dated 6th February, was read and approved.

The Minute recommended the acceptance of the Tender by Messrs George Gordon & Co., Ltd., Aberdeen Sawmills, Aberdeen, for the supply of timber for the Alloa Show.

Mr Norman H. Constable, Bute Estates Office, raised a question with regard to the use of home-grown timber. He thought the time had come when the Society should insist that at least 75 per cent of the timber used in the Showyard should be home-grown.

After some discussion, it was agreed that the matter be remitted to the Show Contracts Committee for consideration and report.

New Implements.—The following were appointed Judges of New Implements: Mr William Low of Balmakewan, Laurencekirk; Mr P. O. Turnbull, Smeaton, Dalkeith; and Mr William S. Niven, The Loan, Errol.

Special Prizes.—A number of Special Prizes were accepted, and votes of thanks accorded to the donors.

Hundredth Show, 1931.

The Secretary read a letter, dated 26th January, from Provost A. M. MacEwen, Inverness, forwarding copy of a Memorial for Alexander Munro and others, with Opinion thereon, by Mr W. G. Normand, K.C. The Memorial and Opinion were also read.

TOWN HOUSE, INVERNESS,
26th January 1929.

JOHN STIRTON, Esq.,
Secretary,
Highland & Agricultural Society,
Edinburgh.

DEAR SIR,

HUNDREDTH SHOW.

In view of the widespread dissatisfaction which has been expressed to us (not only in the North, but from correspondents throughout Scotland) at the proceedings at the Annual General Meeting of the Society held on 9th instant, we have thought it our duty to obtain the Opinion of Counsel in regard to certain questions arising therefrom.

We have accordingly obtained the opinion of Mr W. G. Normand, K.C., and we enclose a copy of the Memorial and Opinion, in order that you may submit these to your Directors.

The Directors will observe that in Mr Normand's opinion the choice of the place in which the Annual Show is to be held is part of the ordinary business of the Society, and, as such, is committed by the Charter of 1834 to the management and direction of the Officers of the Society—viz., the President, Vice-President, Directors, Treasurer, and Honorary Secretary, and that, therefore, the resolution of the Society in general meeting purporting to fix the place for the Annual Show, even if otherwise carried in accordance with the terms of the Charter, would not be binding on the Officers of the Society, and that the decision of the Officers of the Society taken in December to hold the Show in Inverness would not be affected by the resolution of the General Meeting of the Society held on 9th January 1929.

Mr Normand is further of opinion that in any case the resolution at the Annual Meeting was not carried in accordance with the terms of the Charter, and was " wholly null and of no effect," in respect that no attempt was made to ascertain the number of those present, and that it is impossible to say that the resolution was carried by a majority of such numbers.

We think that the soundness and common-sense of Mr Normand's opinion cannot be controverted, and we, accordingly, submit that the decision of the Directors previously arrived at after full consideration of the matter, and by a majority of 20 for Inverness as against 14 for Perth, and only 8 for Edinburgh, stands as the final decision on the subject. We submit that the Directors, men of wide experience, and representative of all parts of Scotland, are the best, and, legally, the only judges of where the Show is to be held. We cannot imagine that they will allow themselves to be jockeyed out of their considered judgment by the confused and illegal proceedings at the Annual Meeting, declared by one of the leading Counsel in Scotland to be " wholly null and of no effect."

In conclusion, we wish to point out that by adhering to their previous decision, the Directors will be following the dictates, not only of justice, but of public opinion. The expression of public opinion in favour of having the 100th Show at Inverness has been striking. The leading newspapers of Glasgow, Aberdeen, and Dundee have all supported Inverness, and we have ourselves received letters of support from all parts of Scotland. If the Directors wish to be fortified by public opinion, they have got it.

We shall be obliged by your submitting this letter to the Directors at their first meeting.

We are,

Yours faithfully,

For and on behalf of the Committee appointed at Inverness in July 1928,

ALEX. M. MACEWEN,
Chairman.

P.S.—In view of the public interest in this matter, we are sending a copy of this letter to the press.

MEMORIAL for ALEXANDER MUNRO, Leanach, Inverness-shire; ALEXANDER MALCOLM MACEWEN, Solicitor, Inverness, Provost of Inverness; CHARLEY TINKER, Kilmartin, Inverness-shire; R. A. SMITH, Wester Lovat, Beauly; and A. P. GORDON of Bindal, Ross-shire; and others.

Mr Munro is a Director of the Highland and Agricultural Society of Scotland, and the other Memorialists are members of the said Society.

For a considerable time past, there has been considerable discussion as to where the 100th Show of the Society, which is due to be held in 1931, should take place. In July 1928, at a largely attended meeting held in Inverness, and presided over by the MacKintosh of MacKintosh, resolutions were passed in favour of holding the Show in Inverness, on the ground that it was due to take place at Inverness in the ordinary course of rotation, that the year 1931 would be the Centenary of the first Inverness Show, and that, as the original objects of the Society were for the improvement of agriculture, etc., in the Highlands, the Capital of the Highlands was the most suitable place for such a Show. It was also resolved to ask the Directors of the Society to receive a deputation, and, accordingly, on 4th December 1928, a deputation headed by the MacKintosh of MacKintosh, Provost MacEwen, and others, was received by the Directors. Thereafter a meeting of the Directors took place, at which, on a vote being taken, 20 voted for holding the Show in Inverness, and 14 for holding it at Perth. On a subsequent vote, 8 voted for holding the Show in Edinburgh.

At the Annual General Meeting of the Society held in Edinburgh on 9th January 1929, the following resolution was, *inter alia*, submitted :—

> " That provided a suitable site is available and satisfactory financial and other arrangements can be made, the Society's 100th Show in 1931 be held at Inverness."

The meeting was held in the Freemasons' Hall, George Street, Edinburgh, and was filled to its utmost extent. Not only were all the seats occupied, but a large number of people were standing. On both sides of the Hall there are pillars, and an open corridor behind these pillars. This corridor was also filled with people standing, and the gallery was also full. The seating capacity is believed to be 650, and there were about 150 standing on each side, making a total of about 950 people.

The above resolution was moved by Mr Munro, and seconded by Provost MacEwen. Thereafter, Mr Mercer, Southfield, Dalkeith, seconded by Mr William Hutcheson, Courthill, Kelso, moved, as an amendment, that the Show be held in Edinburgh. Thereafter Mr Pitcaithly, Wester Dron, Bridge of Earn, seconded by Mr W. J. Brewster Grant, Blairgowrie, moved as a further amendment that the Show be held in Perth. The Chairman, the Earl of Mar and Kellie, then stated that a vote would be taken between Edinburgh and Perth by a show of hands. In view of the large number of people in the Hall, and the difficulty of counting the votes, several persons protested against this method of taking the vote. The Secretary then proposed that the vote should be taken by the members going out through one door of the Hall and re-entering by another door. The Hall, however, was so congested that this was found to be impracticable, and was abandoned. An attempt was then made to take the vote by a show of hands. The movers and seconders of the resolutions and the amendments were asked to act as tellers. Great difficulty was experienced in counting the hands. A number of people seemed to be uncertain for what they were voting, and it was noticed that hands would frequently be put up and then taken down, and *vice versa*. It was particularly difficult to count the votes of those standing round the pillars, as some people were, more or less, hidden behind the pillars. The vote for Perth was first taken, and was said to result in 223. A show of hands was then asked for Edinburgh, and the Chairman declared that this showed such an overwhelming majority that it was not necessary to count the votes. Protests were heard against this decision, but it was adhered to. The vote was then taken between Inverness and Edinburgh, and it was stated that this resulted as follows: Edinburgh—357, Inverness—254. The same difficulty occurred in counting the votes. As an instance of this, it may be mentioned that, in counting the votes on his side of the Hall for Edinburgh, Provost MacEwen reckoned the votes to be 152, while the other teller reckoned the votes to be 182. It is not known what figure was put down, but it is believed that the Secretary compromised the matter by putting down 160 or 165. Provost MacEwen, in giving his number to the Secretary, stated that it was impossible to make an accurate count and that he did not guarantee his figures. Throughout the counting there was great noise and confusion, and several members rose up and protested. In particular, Mr Charley Tinker, Kilmartin, protested that the proceedings were illegal.

After the Chairman had declared the result of the vote, Mr Archibald MacNeilage rose to challenge the figures, and moved that a poll of the members of the Society be taken, which was seconded by Mr R. Smith, Wester Lovat. The Chairman, however, declared that the vote taken would stand. Mr A. Munro also raised the question as to whether the decision of the Directors could be upset. Provost MacEwen moved that the matter be remitted back to the Directors to consider as to the best method of ascertaining the will of the Society on the subject of the locus of the Centenary Show, but this was ruled out of order.

The Memorialists desire to draw attention to the following points:—

(1) No check was taken on those attending the meeting, and it was open to any one to be in the Hall. Before the vote was taken, Mr Brewster Grant asked if all in the Hall were members of the Society, but no answer was received.

(2) The Charter of 1834 provides as follows:—

> "Each ordinary member of the Society shall pay his annual contribution for the preceding year at or before the General Meeting in January, or otherwise he shall have no vote."

Several new members were present who had not paid their contributions, and who, nevertheless, voted. No attempt was made to ascertain whether those present had in fact paid their contributions.

(3) The Charter of 1834 provides as follows:—

> "All questions before General Meetings shall be decided by a majority of votes of the members present."

No attempt was made to count the members present, and it was therefore impossible to say whether the votes recorded for Edinburgh, assuming them to be correct, represented a majority of those present. If, as is believed, there were about 900 persons present, then the votes cast for Edinburgh did not represent a majority of those present.

(4) Byelaw 14 of the Society provides as follows:—

> "At General Meetings of the Society, no motion or proposal, except of mere form of courtesy, shall be submitted or entertained for immediate decision, unless notice thereof has been given a week previously to the Board of Directors, without prejudice, however, to the competency of making such motion or proposal to the effect of its being remitted to the Directors for consideration, and thereafter being disposed of at a future General Meeting."

No notice was given of the proposals to hold the Show at Edinburgh, or Perth, and it is submitted that these cannot be regarded as competent amendments to the resolution submitted.

(5) The Charter of 1834 provides:—

> "That the President, Vice-Presidents, Directors, Ordinary and Extraordinary, Treasurer, and Hon. Secretary shall manage and direct the ordinary business of the Society in all matters in compliance with the constitution bye-laws and regulations of the institution."

It is submitted that the selection of a place for the Annual Show is part of the ordinary business of the Society, and therefore falls to be managed by the Directors, and that it was not competent for the members in Annual General Meeting to overturn the decision of the Directors.

In view of the above facts, the Memorialists desire to be advised by Counsel on the following points:—

(1) Whether the proceedings at the Annual Meeting of the Society were valid, and in accordance with the Charter and Bye-laws of the Society, and

(2) If Counsel is of opinion that such proceedings were invalid, what course would he advise the Memorialists to take to overturn the alleged decision at the General Meeting?

15th January 1929.

OPINION.

(1) In my opinion the choice of the place in which the Annual Show is to be held is part of the ordinary business of the Society and as such is committed by the Charter of 1834 to the management and direction of the Officers of the Society—namely, the President, Vice-Presidents, Directors, Treasurer, and Honorary Secretary. I am therefore of opinion that the resolution of the Society in general meeting purporting to fix the place for the Annual Show, even if otherwise carried in accordance with the terms of the Charter, would not be binding on the Officers of the Society, and that the decision of the Officers of the Society taken in December to hold the Show at Inverness would not be affected by the resolution of the General Meeting of the Society held on 9th January 1929. Further and in any event the resolution of 9th January 1929 was not in my opinion carried in accordance with the terms of the Charter. There was no attempt to ascertain the number of members present, and it is impossible to say that the resolution was carried by a majority of such members. Other irregularities appeared to have been allowed. But in my view the irregularity which I have mentioned is sufficient to render the resolution wholly null and of no effect.

(2) In my opinion the Officers of the Society should be invited to adhere to their own decision of December on the grounds which I have set forth.

The Opinion of

(Sgd.) W G. NORMAND.

EDINBURGH, 23*rd January* 1929.

The Chairman said that, when he received a copy of that Memorial and Opinion, he considered it purely a legal matter, and instructed the Secretary to ask the Society's Law Agents to give their views and criticisms on the Memorial and Opinion.

The Secretary also read a letter from the Society's Law Agents, Messrs Tods, Murray & Jamieson, W.S., which was in the following terms:—

66 QUEEN STREET,
EDINBURGH, 1*st February* 1929.

DEAR SIR,

HUNDREDTH SHOW, 1931.

We are favoured with your letter of yesterday sending us a copy of the Minute of Meeting of Directors held on 5th December last, for which we are obliged.

We note that the Chairman of your Directors has suggested that we submit to you our views on the Opinion recently given by Mr Normand, K.C., and on the Memorial on which it followed.

We have accordingly considered the Memorial and Opinion, and upon these we make the following observations.

The Memorial primarily raises the question as to whether the decision at the Society's General Meeting can be successfully challenged on account of the method in which the voting took place, but Mr Normand does not in his Opinion indicate that he was impressed with the suggested difficulties from that point of view, and, indeed, ignores them in his Opinion. We think, therefore, it may be assumed that Mr Normand is not prepared to challenge—

1. The acceptance by the Chairman and by the Meeting of the amendments that the Show be held (*a*) in Edinburgh, and (*b*) in Perth as competent amendments.
2. That the voting in the first instance as between Edinburgh and Perth was correctly taken before Inverness was voted on.
3. That the final vote between Inverness and Edinburgh was also correctly taken.

In our opinion, the procedure on these three matters is not open to successful attack.

That being so, it is perhaps unnecessary to refer further to any of these three matters, but it rather occurs to us that the Memorial does not very accurately or fully set out the facts regarding them. The way in which the facts were presented in the Memorial may have had some effect in creating an impression in Mr Normand's mind that the proceedings were not conducted with fairness to the supporters of Inverness. For example, it is not brought out—what we understand is the fact—that the spokesmen from Inverness formally moved that the votes be taken by show of hands. We observe further that the Memorial suggests that the figures ultimately announced by the Chairman as the result of the vote were not accurate. Our understanding of this matter is that the tellers who counted the votes, and who included representatives of Inverness, agreed upon the figures obtained as the result of their count.

As, however, Mr Normand has disregarded the above questions, we proceed to deal with the advice he has given his clients that the vote in favour of Edinburgh was not carried in accordance with the terms of the Charter. On that point his view is that there was no attempt made to ascertain the number of members present at the meeting, and that it is, accordingly, impossible to say that the resolution was carried by a majority of such members.

We have had some difficulty in understanding how Mr Normand has arrived at that view. It does not appear from the Memorial, or from the Opinion, that Mr Normand had before him a print of the Society's Charters, but we assume that he did have a print in front of him. It is worth noting, however, that (on the assumption that the copy of the Memorial sent to you by Provost MacEwen is a correct copy) the essential provision in the Charter of 1834 bears to be quoted in the Memorial, and unfortunately it is misquoted in what may well be a material respect. According to the quotation furnished to Mr Normand, all questions before General Meetings fall to be decided " by a majority of *those* of the members present." In point of fact what the Charter provides is that all such questions shall be decided "by a majority of *votes* of the members present." We think it not improbable that Mr Normand has been misled by the quotation referred to, and that that has influenced him in the view he has expressed that it is impossible to say that the resolution was carried by a majority of the members present because of no separate count having been taken of the members present in the Hall.

But the correct terms of the section of the Charter referred to do not, in our opinion, involve a separate count of the members present in the Hall. What the section requires is that a majority of the votes tendered at the meeting by the members present should decide the question voted upon. If we are right in this view, Mr Normand's Opinion on this matter is wrong, and in view of the manner in which Mr Normand appears to have been inadvertently misled in this question, we cannot advise the Directors to place any undue importance upon Mr Normand's opinion on that point.

The main ground, however, upon which Mr Normand bases his opinion that the decision to hold the Show in Edinburgh is null and of no effect is that the choice of the place in which the Annual Show is to be held is part of the ordinary business of the Society which is remitted by the Charter of 1834 to the Board of Directors, and that it was not competent for the Society in General Meeting effectively to reverse the previous decision of the Directors. Mr Normand gives no authority in support of his Opinion, and, before discussing the legal aspect, we think it well to point out that on this matter also the Memorial submitted to Mr Normand does not appear to have adequately represented the position. It is the fact, we understand, that in the past the question as to where the Annual Show is to be held has always been submitted to a General Meeting of the Society each year, and, further, we rather understand that there have been occasions where the decision of the Directors has not been confirmed by the Society. In connection with the present question as to the Centenary Show, there is perhaps reason also to suggest that the decision as to the site of that Show is not what can fairly be described as ordinary business of the Society. It is a question which can only arise once in a century, and it is fairly obvious that at the recent meeting of the Society the question discussed was treated by the various parties interested as one of unusual interest and importance.

On the purely legal aspect of this last question (and on the assumption that the fixing of the Centenary Show was part of the Society's ordinary business), we know of no authority which justifies the view that the management by Directors of a Society excludes the right of the Society itself to consider and, if so advised, to take a contrary view to that previously adopted by Directors. As we have already said, Mr Normand gives no authority for such a view in his Opinion. Such questions have arisen before now in connection with Limited Companies, and it is possible that Mr Normand may have considered that the law in regard to the management of Limited Companies is reasonably applicable to the management of a Society incorporated by Royal Charter. A case occurred in the English Courts in 1906, the circumstances of which related to a Company which had power under its Memorandum of Association to sell its undertaking to another Company having similar objects, and by its Articles of Association the powers of management and control of the Company were vested in the Directors, and, in particular, the Directors were empowered to sell or otherwise deal with any property of the Company on such terms as they might think fit. At a General Meeting of the Company a Resolution was passed by a simple majority of the Shareholders for the sale of the Company's assets on certain terms to a new Company formed for the purpose of acquiring them, and empowering the Directors to carry the sale into effect. The Directors were of opinion that a sale on the terms approved by the Shareholders was not for the benefit of the Company, and declined to carry the sale into effect. It was held by the English Courts upon the construction of the Articles of Association that the Directors could not be compelled to comply with the Resolution. The view taken by the English Appeal Court was that the Articles of Association formed a contract binding on the members of the Company, and that the Shareholders had by their Articles of Association stipulated that their affairs should be managed by the Directors in the manner described by the Articles, and that as the Articles provided that the powers conferred upon the Directors could only be varied by a three-fourths majority at the meeting of Shareholders, the actions of the Directors could not be challenged by the passing of a Resolution by a simple majority of the Shareholders. That case illustrates the difficulty of assimilating Company Law and Practice to the Law and Practice of Societies, for the Companies Acts require in certain matters a three-fourths majority, while for other purposes a simple majority is sufficient. There is, of course, no requirement of a three-fourths majority for any purpose in connection with the administration of your Society, and we know of no authority for a limitation of the ordinary rule that the will of the majority of the members of a Society is effective. The case to which we refer has been adverted to in subsequent cases in the English Courts, and it has been authoritatively remarked that in the absence of any contract to the contrary, the majority of the Shareholders in a Company have the ultimate control of its affairs, and, in our view, that same principle is applicable to the conduct of the business of the Highland and Agricultural Society.

It is satisfactory to know that the view of the legal position which we have expressed is in accordance with the use and wont practice of the Society. On the assumption, however, that Mr Normand's view of the law is correct, that necessarily raises the question of what it was that the Directors in December resolved upon. We have before us print of the Minute of the Meeting of Directors held on 5th December, and we find that after the vote in favour of Inverness was carried, the Minute concludes thus: "The Chairman stated that the decision arrived at in favour of Inverness would be submitted to the anniversary General Meeting on 9th January." The terms of the Minute naturally suggest that the Directors at their Meeting were not acting on Mr Normand's view of the law that they were the final judges of where the Centenary Show was to be held, because the Minute expressly states that the Directors' decision would be submitted to the General Meeting of the Society, as was in fact done, with the belief, as we understand the position, in the minds of the Directors and also of the members of the Society, that the Directors' recommendation brought up at the meeting of the Society was not a matter of form, but was to be a question on which the decision of the Society in General Meeting was to be invoked. In these circumstances, it seems to us that there is no sufficient ground for the view that the recorded decision of the Directors was a final decision in favour of Inverness, but that it was a decision in favour of Inverness qualified by subsequent submission to the Society for its decision as to where the Centenary Show was to be held.

We are,

Yours faithfully,

(Signed). TODS, MURRAY & JAMIESON.

JOHN STIRTON, Esq.,
Highland & Agricultural Society of Scotland,
3 George IV. Bridge, Edinburgh.

Mr J. C. Scott, of Messrs Tods, Murray & Jamieson, W.S., was in attendance.

Some discussion followed, and Mr Scott, at the request of the Chairman, gave some explanations desired on the legal position.

At the conclusion of the discussion, the Chairman stated that the Directors had no option other than to abide by the decision arrived at at the Anniversary General Meeting that the Hundredth Show in 1931 be held in Edinburgh, and to proceed accordingly with the arrangements.

Finance.

A Minute of Meeting of Finance Committee, dated 5th February, was submitted and approved.

The Minute recommended the appointment of Mr John Watt as Second Clerk to the Society, at a commencing salary at £250 per annum.

MEETING OF DIRECTORS, 6TH MARCH 1929.

Mr JAMES M'LAREN, Cornton, Bridge of Allan, in the Chair.

Present.—Vice-President—Mr J. Ernest Kerr. *Ordinary Directors*—Mr Norman H. Constable, Hon. T. G. P. Corbett, Mr James Durno, Mr George Grant, Mr Peter Grant, Mr William C. Hunter, Mr James R. Lumsden, Mr James M'Laren, Dr T. G. Nasmyth, Mr John W. Prentice, Mr John Robson, Jun., Hon. Walter T. H. Scott, Mr Archibald Whyte. *Extraordinary Directors*—Mr Robert Macmillan, Provost A. P. Moir, Major R. W. Sharpe. *Treasurer*—Sir David Wilson, Bart., D.Sc. *Hon. Secretary*—Colonel F. J. Carruthers. *Consulting Engineer*—Professor R. Stanfield.

The Late Mr William Elliot, Lanark.

Before proceeding with the business of the Meeting, the Chairman referred in sympathetic terms to the loss the Society had sustained through the death of Mr William Elliot, Lanark, which had occurred with tragic suddenness on 22nd February.

Mr Elliot, he said, was for over forty years a Member of the Society, and during the past fifteen years was closely identified with the work of that Board, having served for two terms as an Ordinary Director and on several occasions as an Extraordinary Director. He was a regular attender at their Meetings, and took a keen and practical interest in the affairs of the Society. His knowledge of all questions affecting Live Stock was of especial service during the War period, and it was largely due to his unfailing interest in farm servants that the Society's Scheme for encouraging long service had attained its present successful development. As a Steward of various departments he was intimately associated with the Society's Annual Shows. In particular, as Steward of Gates he rendered valuable services to the Society during the years immediately following the War.

As an Agriculturist and Live Stock salesman he was known and esteemed throughout the whole country for his business capacity and high standard of integrity. His death was a loss which would be widely felt throughout Agricultural circles in Scotland, and nowhere would it be more deeply deplored than amongst his colleagues on that Board.

A Resolution of regret and sympathy was submitted and approved, the Members present upstanding, and the Secretary was instructed to forward a copy to Mrs Elliot and the family of the deceased.

Letters.

The following letters were submitted:—

Scottish Agricultural Organisation Society.—Expressing thanks for grant of £100 for current year.

National Farmers' Union of Scotland.—Thanking the Directors for a free site at Alloa Show to be occupied jointly by the Union and the S.A.O.S.

Commonwealth of Australia.—Regarding shipment of stock to Australia by a vessel leaving Glasgow on 25th May.

Alloa Show.

Proof of Prize List.—A proof print of the Prize List and Regulations was submitted and considered in detail.

The Secretary reported that the Sub-Committee appointed at last Meeting to consider the question of admitting horses to the Showyard which were suffering from Cold, recommended the following addition to Rule 4: "The Steward of Horses shall have power to require that any animal showing symptoms of Cold be examined by the Veterinary Surgeon, and, if found to be so suffering, the animal shall be isolated or excluded from the Showyard." The recommendation was approved.

The Prize List and Regulations were then approved for publication.

Pig and Pig Products Educational Exhibit.—On a request from the Department of Agriculture for Scotland, it was agreed to grant a free site, 80 feet by 40 feet, on which to stage a Pig and Pig Products Educational Exhibit to be arranged by the Ministry of Agriculture and Fisheries.

Bacon Pig Competition.—On an application from the Scottish National Association of Pig Breeders it was decided to continue, for the current year, the grant of a free stand and £25 towards the cost of the Competition.

S.S.P.C.A.—An application by the Scottish Society for Prevention of Cruelty to Animals for a small stand for a display of mechanical killers was granted.

Single Judging.

A letter was submitted from the Hon. Secretary of the Joint-Committee of Scottish Shorthorn Breeders forwarding excerpt from a Minute of Meeting of that Committee, held at Perth on 11th February, urging a return to the old system of appointing two Judges—at least in the case of Shorthorns.

Mr William C. Hunter of Arngask, in requesting the Directors to give the representation their careful consideration, explained the representative character of the Joint-Committee.

On the motion of the Chairman the matter was remitted to the Shows Committee for consideration at their Meeting in November.

PROCEEDINGS AT GENERAL MEETINGS.

GENERAL MEETING, 6TH JUNE 1928.

Sir RALPH ANSTRUTHER of Balcaskie, Bart., in the Chair.

New Members.

One hundred and forty-nine candidates were balloted for and admitted members of the Society.

Election of Office-Bearers.

The following noblemen and gentlemen were elected office-bearers of the Society for the year 1928-29:—

President.—The Earl of Mar and Kellie, K.T., Alloa Park, Alloa.

Vice-Presidents.—Viscount Younger of Leckie, Gargunnock; The Earl of Ancaster, Drummond Castle, Crieff; Mr John J. Moubray of Naemoor, Rumbling Bridge; Sir Iain Colquhoun of Colquhoun and Luss, Bart., Rossdhu, Luss.

Ordinary Directors, 1925.—Mr James M'Laren, Cornton, Bridge of Allan; Mr W. P. Gilmour, Balmangan, Kirkcudbright; Mr Peter Grant, Mains, Advie, Morayshire; Mr William C. Hunter of Arngask, Glenfarg; The Hon. T. G. P. Corbett, Rowallan, Kilmarnock; Mr Athole S. Hay of Marlefield, Roxburgh; Dr Thomas G. Nasmyth, Canaan Lodge, 43 Canaan Lane, Edinburgh; Mr Alfred H. Reid, Hillhead, Ellon.

1926.—Mr James M'Queen of Crofts, Dalbeattie; Mr Alexander Munro of Leanach, Culloden Moor, Inverness; Mr Alexander Niven of Collairnie, Ladybank; Mr Norman H. Constable, Bute Estate Office, Rothesay; Mr J. P. Ross Taylor, Mungoswalls, Duns; Mr Phipps O. Turnbull, Smeaton, Dalkeith; Mr James Durno, Crichie, Inverurie; Brig.-General Archibald Stirling of Keir, Dunblane.

1927.—Lieut.-Colonel Thomas W. Cuthbert, C.M.G., D.S.O., Achindunie, Alness; Mr William Meiklem, Bennochy Park, Kirkcaldy; Sir Thomas Paxton, Bart., LL.D., 22-28 Adelphi Street, Glasgow; Hon. Walter T. H. Scott, Master of Polwarth, Harden, Hawick; Sir James Inglis Davidson, Saughton Mains, Corstorphine; Mr George Grant, Glenfarclas, Blacksboat; Mr John W. Prentice, Craigrie Farm, Clackmannan; Mr James M'Clean, Craigmount, Portpatrick.

1928.—Mr Archibald Whyte, Spott, Kirriemuir; Mr Alexander Murdoch, East Hallside, Hallside, Lanarkshire; Mr Thomas Templeton, Sandyknowe, Kelso; Mr Robert Park, Brunstane, Portobello; Colonel Robert W. Walker, Portlethen, Aberdeen; Mr James R. Lumsden of Arden, Dumbartonshire; Colonel F. J. Carruthers of Dormont, Lockerbie; Mr John Robson, jun., Lynegar, Watten, Caithness.

Extraordinary Directors.—Mr Alexander Forbes, Rettie, Banff; The Earl of Elgin and Kincardine, C.M.G., Broomhall, Dunfermline; Major Robert W. Sharpe of The Park, Earlston; Bailie William Poole, J.P., Englewood, Blackhall; Mr A. A. Hagart Speirs of Elderslie, Houston House, Houston; Mr William Low of Balmakewan, Laurencekirk; Mr Robert Macmillan of Holm of Dalquhairn, Woodlea, Moniaive; Mr William S. Niven, The Loan, Errol; Mr William Elliot, Muirglen, Lanark; Mr John Elliot, Balnakiel, Galashiels; Mr A. Y. Allan, Aitkenbar, Dumbarton; Mr William Carrick, Newlands, Stirling; Mr James Gray, Glenoonah, Kippen Station; Mr J. Ernest Kerr of Harviestoun, Dollar; Mr William J. Kippen of Westerton, Balloch; Mr Peter M'Intyre, Tighnablair, Comrie; Mr William M'Laren, Inch, Kincardine-on-Forth; Provost A. P. Moir, Alloa; Mr W. Watson Murray, Catter House, Drymen; Mr Alexander Robertson, Estate Office, Polmaise, Stirling.

Treasurer.—Sir David Wilson, Bart., D.Sc., of Carbeth, Killearn.

Honorary Secretary.—Sir Hugh Shaw Stewart of Greenock and Blackhall, Bart., C.B., Ardgowan, Inverkip.

Special Grants.

Mr Robert Macmillan of Holm of Dalquhairn moved approval of the following Special Grants, which were recommended by the Board of Directors:—

(1) £1000 to the Rowett Research Institute towards the establishment of an experimental stock farm.

(2) £200, for the current year, to the Animal Diseases Research Association.

(3) £50 to the Scottish National Milk and Health Association.

Dr T. G. Nasmyth, Canaan Lodge, seconded, and the grants were unanimously approved.

Aberdeen Show, 1928.

Mr William Low of Balmakewan reported as follows: I have to report that the arrangements for the forthcoming Show at Aberdeen, on 24th July and three following days, are fairly well advanced. The erection of the Showyard buildings has been somewhat delayed by the fact that occupation of part of the ground could not be got until 1st June, and that levelling operations on other parts of the ground were not completed before the building operations commenced. The site provided by the Town Council of Aberdeen on the Links is sufficient in extent, and while not ideal either in respect of shape or the nature of the surface, is convenient of access both for exhibits and visitors to the Show.

The entries in the section for Implements, Machinery, and other exhibits, which have now closed, are well up to the average, about 8600 feet (frontage) having been applied for. While this is about 1000 feet less than at Edinburgh last year, it compares quite favourably with other centres. Entries of Stock close to-day, and while no figures can be given, it appears probable that in that section also some falling off may be expected from the high figures of last year.

At the same time, it is certain that a large and representative exhibit of all the principal breeds of live stock will be on view, and, given good weather, there is every prospect that the Show should prove to be a distinct success.

All the usual features of recent Shows will be retained, including the Live Stock Judging Competition, for which entries do not close until 10th July. In addition, a new section is provided for Shire horses, for which a good entry is assured.

Alloa Show, 1929.

Mr John W. Prentice, Craigrie Mains, reported that a site for the Show of 1929 had now been secured at Alloa Park, Alloa. This site had been placed at the disposal of the Society through the courtesy of the Town Council of Alloa and the proprietor of the Park, the Earl of Mar and Kellie. The ground was beautifully situated, ample in extent, and convenient of access. The town of Alloa had also agreed to give a supply of water free of charge, to undertake certain necessary draining, and to carry out any restoration which might be required in connection with the drives and policies.

Show of 1930.

Colonel F. J. Carruthers of Dormont reported that a small Committee had been appointed to look out for a suitable site in the Dumfries Show Division. The Committee had ascertained that the site occupied by the Show in 1922 was still available. Negotiations were proceeding as to the terms on which the ground could be acquired for the Show of 1930, and as to what arrangements could be made with the Town Council of Dumfries.

Proposed Quarantine Station.

Mr Alexander Murdoch, East Hallside, reported that extended inquiries had been made with a view to obtaining a suitable site in Glasgow for the proposed Quarantine Station for Scotland. It had not been found possible to secure any building which could be converted at a reasonable cost to the purposes of a Quarantine Station. Negotiations had now been entered into for a site which the Directors considered would be suitable. This consisted of a piece of ground in the vicinity of Princes Dock, which it was proposed to rent from the London Midland and Scottish Railway Company.

Plans and specifications of the proposed erections had been prepared and forwarded to the Empire Marketing Board. On receiving approval of the site and of the proposed erections, the Directors would proceed to obtain definite estimates of the cost.

In the meantime the Directors were disappointed to learn of the small advantage which was being taken of the station recently opened in London, and they had requested the Ministry of Agriculture to take steps to ascertain from the various Colonies and Dominions whether they would be prepared to accept stock from Scotland which had passed through the proposed station.

Agricultural Education.

Colonel F. J. Carruthers, Convener of the Education Committee, reported as follows :—

(*a*) *National Diploma in Agriculture.*

"I have to submit the following report on the Examination held at Leeds in April last for the National Diploma in Agriculture. 155 candidates presented themselves for examination ; 36 candidates were from Scotland. As a result of the Examination, 59 Diplomas were awarded, 4 with Honours. Of the 155 candidates, 9 appeared for all the subjects, and of these 7 passed, 1 with Honours. 75 had passed certain subjects previously, and were completing the Examination this year, and of these 52 obtained the Diploma. The remaining 71 presented themselves for groups of three, four, or five subjects, and of these 35 passed in the subjects for which they appeared, and are entitled to appear for the remaining subjects in 1929 or 1930."

(*b*) *National Diploma in Dairying.*

"Negotiations have taken place recently between the National Agricultural Examination Board (which is composed of representatives of this Society and of the Royal Agricultural Society) and the British Dairy Farmers' Association as to the possibility of combining into one the National Diploma in Dairying and the Dairy Diploma granted by the British Dairy Farmers' Association.

The Examinations for these Diplomas, as the result of joint action a few years ago, are now held on the same Syllabus and under the same conditions. The holding of the two Examinations immediately following one another is not good for students who take them both, and leads to overcrowding at the Educational Institutions while the Examinations are going on.

The British Dairy Farmers' Association, in suggesting the combination, pointed out that if it could be effected it would add to the strength of the Examination, and simplify the work at the Teaching Centres.

The National Agricultural Examination Board unanimously agrees that it is desirable to amalgamate the National Diploma in Dairying and the Dairy Diploma of the British Dairy Farmers' Association, and this has received the approval of the Board of Directors. The conditions under which the amalgamation will take place are as follows :—

1. The name of the Diploma will continue to be the National Diploma in Dairying : the titles of the three Societies will be printed on the Diploma, and it will be signed by the Secretaries of all three Societies.
2. The N.D.A. Examination will remain as at present, but for the purpose of the Dairy Examinations a separate body, to be known as the National Dairy Examination Board, will be constituted to include equal representation of the three bodies.
3. The expenses of the new Dairy Examination Board will be shared equally by the three Societies."

Colonel Carruthers, in moving approval of the Report, said that the proposed amalgamation was a step in the right direction. There had been overlapping in these two Diplomas for some years, and it was satisfactory that arrangements had been made to have the two combined under one Joint Board of Management.

The Report was unanimously approved.

New Premises.

Mr James M'Laren, Chairman of Directors, reported that the Board of Directors had recently concluded the purchase of premises at 8 Eglinton Crescent, Edinburgh, to be used as the offices and headquarters of the Society. It was proposed to remove there some time before the November term, and the Directors hoped that the new premises would prove to be suitable and convenient for all connected with the Society.

Report by Chemist.

Dr J. F. Tocher, Consulting Chemist to the Society, submitted a Report on the work done in this department during the past half year.

The substance of Dr Tocher's Report appears on pp. 221-226 of this volume.

Vote of Thanks to Chairman.

Mr James M'Laren moved a cordial vote of thanks to Sir Ralph Anstruther, Bart., who, he mentioned, was formerly a Director and a Vice-President of the Society, for presiding at the Meeting.

GENERAL MEETING OF MEMBERS HELD IN THE SHOWYARD, ABERDEEN, 25th JULY 1928.

The Marquis of Aberdeen and Temair, K.T., President of the Society, in the chair.

The Chairman said on this occasion, that of the Ninety-seventh Show of their Society, they could exchange greetings with feelings of satisfaction and thankfulness. Elation could not reasonably be expected, under present circumstances, but the present Show certainly gave ample proof, if such were needed, that their venerable Society was very much alive; and, moreover, there was an abundant manifestation of not only its well recognised characteristics, but also of recent and up-to-date developments. This was all the more encouraging in view of certain present-day problems facing the whole agricultural community, and, in particular, the diminution of the rural population and also the area of cultivated land. But one thing was certain, there must be no forgetfulness of the motto, "Never say die," which had pulled them through so many previous depressing periods. And this was no mere vague sentiment, for there were not a few signs of determined and resourceful effort—illustrations of which were to be found in that showyard—to overcome the emergency. These were chiefly represented by the increasing recognition of the principle of co-operation. This had often been referred to, but hitherto largely in a somewhat vague manner, as the thing to be aimed at, though as yet not within practical reach. The application thereof, however, was spreading, largely through the efforts of the Scottish Agricultural Organisation Society, which was represented there that day. As yet, the application of this policy was largely what might be called Departmental—that was to say, on a commodity basis. Thus, for instance, in the egg trade an extensive business had been established through the system of egg-testing and grading, and as an Aberdeenshire man, he might be excused for quoting the successful experience of Turriff, where, during the recent season, 9000 dozen eggs per week were marketed. Then, too, in regard to wool, the results of the system had been, he was told, most encouraging. Might they not hope that farmers as a body might be stimulated by such examples to join the parent organisation, and thus enable its operations to be conducted on a national footing?

But as to the principle of co-operation as a whole: they had in their midst a very striking manifestation thereof in the Women's Rural Institutes, a very well known and popular movement, but it was very doubtful if its full significance and the secret of its success were widely understood, for its very essence was that of co-operation. He fancied many people imagined that the Meetings, of which they heard so much, were mainly for the purpose of "tea and talk" with some music thrown in. His Lordship asked the members to go and visit the exhibits there shown, and ask how they had been produced, and the results of the industries there exemplified. And they should ask other questions, the answers to which would bring out the full meaning of the movement, which in ten short years had grown up under the auspices of the Board of Agriculture, but which was this year emerging into full independence. They might well ask themselves whether there were not there lessons to be learned and applied by the male members of the Society. Of course, the responsible leaders of the Women's Rural Institutes would be the first to acknowledge the value of the help rendered by the Agricultural Colleges and by the able organisers and lecturers, from whom they had derived so much help.

There was a special feature of the present Show to which it was a pleasure to allude—namely, the welcome visit of the overseas visitors from Australia, New Zealand, and South Africa, who were travelling under the auspices of the British National Union, whose presence they so much appreciated, and to whom they offered their best wishes for themselves and the Dominions they represented.

He could not close without making reference to the great loss which the Society, and in particular that northern district, had undergone in the passing of the late Duke of Richmond and Gordon. His Grace was President of the Aberdeen Shows of 1908 and of 1920, and they were all looking forward to his again occupying the presidential chair on that occasion. He was deeply sensible of the honour and mark of confidence implied by the selection of himself to fill the place of so worthy a predecessor. It was valued the more because of his lifelong association with that county and with its agricultural interests, and especially with regard to the many friends amongst the tenants of the Haddo House and Cromar estates who had won distinction at the Society's Shows.

If the Directors of the Society were influenced by the fact that he had had the privilege of being His Majesty's representative in Aberdeenshire for the past forty-eight years, this would certainly not diminish the appreciation with which he would always remember his present experience.

Votes of Thanks.

Mr James M'Laren, Cornton, Bridge of Allan, Chairman of Directors, said it gave him great pleasure to move: "That a cordial vote of thanks be accorded to Lord Provost Lewis and the Magistrates and Council of the city of Aberdeen for the free site and the free supply of water provided for the Show, and for their hearty co-operation and assistance in all matters tending to promote the success of the Show." The showground, he said, was not all one would have liked, but it had the great advantage of being convenient to the town. When the Show came again to Aberdeen he hoped the Corporation would give them a better site.

Sir Hugh Shaw Stewart of Greenock and Blackhall, Bart., C.B., in seconding, said it was most important for a great show like that to be in close proximity to a centre. An official connected with the Royal Agricultural Society had told him that they were disappointed with the "gate" at Nottingham, and that was due to the fact that they were three miles from a railway station. In Aberdeen they had the great advantage of proximity of access. They thanked the Lord Provost and Magistrates for all they had done in the way of giving the Society a free site and a free supply of water, of which they intended to make full use.

Lord Provost Andrew Lewis, in reply, said the Town Council and citizens generally were glad—they almost counted it a privilege—to give the Society such facilities as they had at their disposal for holding that Show in Aberdeen, which he was sure would be an unqualified success. The ground the Corporation had available for such a purpose was perhaps on the small side, extending to about forty-four acres, but as they would see from the lie of the land, they had done everything they could in regard to space to accommodate the Society, and he was sure the Convener of Links and Parks Committee, Councillor Roberts, and his superintendent, Mr Clark, had been of great assistance to their officials in utilising the ground to its best advantage.

The Highland and Agricultural Society had had a long and honourable history, and throughout that history its associations with the city of Aberdeen had been most cordial and mutually beneficial. Although they claimed for Aberdeenshire the oldest Agricultural Show in Scotland—that of the Garioch Society in 1811—the Highland Society dated from not long after the days of the second Jacobite Rebellion—to be precise, 1784—and its first Show was held in Edinburgh in 1822. Since that date there had been twelve "Highlands" in Aberdeen, and throughout that long period he thought he could truthfully say that the north-east had not let the Directors down either in number and quality of entries or in attendance. A Highland Show in Aberdeen appealed in a particular way to the Aberdonian, who was on the one hand a keen hard-headed business man, and on the other an incurable sentimentalist. They welcomed the "Highland" to Aberdeen because of the commercial advantages and benefits it brought in its train. To the north-east farmer the array of splendid stock supplied a stimulus to excel in his calling. To the citizen of Aberdeen the Show meant an influx of people, with a corresponding influx of "siller" to the city. But while they were credited with superhead qualities, they were not less endowed with qualities of the heart. They were intensely proud of the great part the early stock-breeding pioneers of Aberdeenshire had played in the improvement of the breeds of farm animals. They created a revolution in animal husbandry, and the economic effects of their efforts had been far-reaching. They remembered the great services of, to mention only three, William M'Combie of Tillyfour, Amos Cruickshank of Sittyton, and William Duthie of Collynie. These were the master builders, and they were happy to think that in the north-east they were followed by keen progressive disciples, some of whom were in that company, and who followed up the tradition so worthily set, and maintained for Aberdeenshire its unequalled supremacy in animal breeding.

But not only had they a remarkable history on the practical side: in the realm of science as applied to agriculture the north-east was well in the forefront. The teaching of agricultural subjects was in the early stages undertaken by the University, and later they had the establishment of the North of Scotland College of Agriculture—a thriving institution which, besides turning out graduates to be found all over the world, also conducted practical, experimental, and advisory work throughout the whole northern counties. In more recent years that great national institution, the Rowett Institute, was founded just outside their city walls, where researches were being carried out which had attracted the attention of scientists and agricultural experts throughout the whole Empire and in other countries. In short, Aberdeen and the north-east had a practical and scientific tradition and reputation in stock breeding which were practically without rival in the world.

In closing, the Lord Provost expressed the hope that their great Society would continue to prosper in the very beneficial work it had been doing for the last hundred years and was still doing for what, after all, was the chief industry in Scotland—Agriculture.

Colonel F. J. Carruthers of Dormont, Lockerbie, moved a vote of thanks to Mr Falconer L. Wallace, the Convener, and the members of the local Committee for the efficient and successful manner in which they had carried out the arrangements for the Show. He said Mr Wallace and his Committee had given a great deal of personal attention to the arrangements. There had been certain disabilities about that showground which had caused considerable anxiety and trouble to the local Committee, but they had, in collaboration with the Town Council, done their best to overcome these difficulties. The attending members had, as they always did, attended to their work in bringing out the stock to the judging rings in the most admirable and efficient manner, and thanks were due to them.

Dr T. G. Nasmyth, Canaan Lodge, Edinburgh, in seconding, said he endorsed everything Colonel Carruthers had said about Mr Wallace. He had relations with him in another body; he knew of the activity he showed there, and he knew of his tremendous munificence. They were all confident if Mr Wallace took a thing in hand it would be well done.

Mr Falconer L. Wallace of Candacraig and Balcairn, Strathdon, in reply, said the local Committee had done their best to make the Show a success. They were well aware that the showground was dirty and dusty, but it could not be helped. Everybody had done their best with the showground, and, he thought, with some success in the circumstances. But, speaking not only for the local Committee but for the breeders in the district, he knew what they had most in mind —they wished to give everybody something better to carry away in their minds than the dust, and that was a good display of stock. Everybody in that part of the world had put their shoulders to the wheel. They felt determined to help, as far as the district was able, to produce a good exhibition, and he thought their efforts had met with some success. They wanted to bring forward really good strong Classes, but the season had been peculiarly unpropitious, which made it extremely difficult to bring out stock. Owing to the abnormally cold weather, they had got no grass at all, and that had added to their difficulty in finding something particularly good to show. If the people went away with the feeling that the Aberdeen Show was a really fine one—one to remember, and he had heard a good many remarks in that sense,—it would give the utmost satisfaction to the local Committee as well as to all breeders in the neighbourhood.

The Earl of Elgin and Kincardine, C.M.G., Broomhall, Dunfermline, moved that the Society express its appreciation of the complete and satisfactory arrangements which the railway companies had made for the expeditious transport of both stock and implements connected with the Show. The railway companies, he said, were very much in the public eye at the present moment and very much criticised, and they had great competition from road transport. He felt quite certain, however, that even now, when they had omnibus sleeping-cars, if the road transport companies provided sleeping-cars for bulls and sheep, they should still be very much dependent for many years to come on the efficiency of the railway companies to provide for the proper transport of such a large undertaking as the Highland Show. Looking through the numbers of the exhibits for years past, one could not but be impressed with the large numbers that were collected, both in live stock and in machinery. This year the numbers totalled approximately 3000 live stock, and not far short of that in the case of implements. The live stock varied from Highland bulls to rabbits, and he thought the latter were probably the most difficult to handle of the lot. When one brought to mind the extra work that implied on the railway companies, one could not but be grateful, and extremely grateful, to them for their efficiency in handling the traffic. It was a very special privilege to associate with those remarks an old colleague of his, Mr Gray, a Director of the London and North-Eastern Railway.

The Hon. Walter T. H. Scott, Master of Po warth, Hardon, Hawick, in seconding, said they were all filled with admiration for the capable way in which the railway companies had handled the large volume of traffic.

Mr Alexander Gray, of the London and North-Eastern Railway Company, said it was his privilege, on behalf of the L.M.S. and the L.N.E.R., to return thanks to Lord Elgin for the very appreciative terms in which he acknowledged their services to the Highland and Agricultural Society, and also to the members for their cordial reception of what Lord Elgin had been good enough to say about the companies. He did think it was a sound performance to have placed the exhibits in that yard without confusion, without undue delay, and so far as he could learn without an accident of any description, and one that brought credit not only to Mr Smith of the L.M.S., and to Mr Johnston of the L.N.E.R., who had had the responsibility of making all these arrangements, but to every man in the service who had had a hand in the carrying of them out. He was sure that what Lord Elgin and the Master of Polwarth had said would be received with high appreciation by all concerned. That was not the time nor the place to refer at any length to the serious position in which the railway companies of this country found themselves at the present time. The railway companies had for the past few years been working under difficulties which, he believed, they were going to overcome. With the help of the country, whose interests after all were identical with theirs, and with the co-operation of the splendid staff of servants which the companies had in their service, and given the means of competing on anything like equal terms, he believed the railway companies would very soon be back again into prosperous times.

Single Judging.

Mr Falconer L. Wallace, speaking as a private member, said he had oeen approached by a deputation shortly before that Meeting, and asked to raise for discussion the principle of single judging. Nobody had any personal feelings about it, and no particular judges in mind, but they wanted the matter ventilated. He himself had had no experience of judging, because he had always declined when invited to have his name placed on the list of judges, believing that as an extensive breeder it would not be suitable. He had always had a feeling himself that there was no business in this world where two heads were not better than one. He had noticed, as they had all noticed, mistakes had been made by the best of judges. It was very easy in large Classes; it was the easiest thing in the world—judges of great experience had told him so—to overlook an animal; it was still easier to overlook points. He had often felt it was not an enviable job, where Classes were numerous and good, to place those animals which followed the first, second, and third, and it must be a nervy, tiring business. At the Royal, Highland, and smaller Shows he had heard remarks made by his neighbours about mistakes being made in judging, and he had seen mistakes which he could not help feeling that another man might have prevented, through two heads, two pairs of eyes, two brains being brought into co-operation. He thought many mistakes which were made at any and every Show might be avoided. However the matter of judging was settled, mistakes would always be made. He did not want to say anything more than that.

The Chairman said they all recognised the great importance of the topic which Mr Wallace had brought before them.

Mr William C. Hunter of Arngask, Glenfarg, said he had just come from a Meeting of the Shorthorn breeders of Scotland, at which a resolution was passed in favour of reconsidering the subject of judging. The resolution was one which pointed out that there was no desire to criticise any particular judge or set of judges, but it was felt that so far as the "Highland" was concerned the system of single judging was put forward as an experiment, and the Meeting was in favour of reverting to the old system of two judges.

Mr James M'Laren, speaking on behalf of the Directors, said he was certain that the subject would be taken up by the Directors during the coming year.

Vote of Thanks to Chairman.

Mr John Elliot, Balnakeil, Galashiels, in moving a vote of thanks to the President, said that Lord Aberdeen had represented this country far and near, and on all occasions had brought home laurels to Scotland and the Scots. They all realised what that proud patriotism of his Lordship had done. It was a beacon light to the young Scotsmen who would succeed the present generation.

The Chairman briefly acknowledged, and the proceedings terminated.

ANNIVERSARY GENERAL MEETING, 9TH JANUARY 1929.

HELD IN THE FREEMASON'S HALL, 96-98 GEORGE STREET, EDINBURGH.

he EARL OF MAR AND KELLIE, K.T., President of the Society, in the Chair.

Illness of H.M. The King.

Before proceeding with the business of the Meeting, the President submitted the following telegram which he proposed to send to Her Majesty The Queen:—

"The Members of the Highland and Agricultural Society of Scotland, in General Meeting assembled, respectfully tender to Your Majesty a renewed expression of their loyalty and devotion to the Throne.

"They earnestly pray that His Majesty The King may soon be restored to health and strength, and that Your Majesties may long be spared to reign over the persons and in the hearts of your people."

The Members of the Society present, upstanding, agreed that the message be sent to Buckingham Palace.

New Members.

One hundred and sixty-five candidates for election were unanimously admitted Members of the Society.

Vacancies on Board.

Mr James M'Laren, Cornton, Bridge of Allan, Chairman of Directors, moved the following recommendations of the Board of Directors:—

Vice-President.—That Mr J. Ernest Kerr of Harviestoun, Dollar, be appointed a Vice-President of the Society, in room of the late Mr J. J. Moubray of Naemoor.

Extraordinary Directors.—That Mr Robert M'Gee, Blackfaulds, Sauchie, Alloa, be appointed an Extraordinary Director to fill the vacancy caused by the appointment of Mr Kerr as a Vice-President; and that Mr W. Betts Donaldson of Auchineden, Blanefield, be appointed to fill the vacancy caused by the death of Mr William J. Kippen of Westerton.

These recommendations were duly adopted.

Honorary Secretary.

Mr James M'Laren also moved that, in accordance with the unanimous recommendation of the Board of Directors, Colonel F. J. Carruthers of Dormont, Lockerbie, be elected Honorary Secretary of the Society, in place of Sir Hugh Shaw Stewart of Greenock and Blackhall, Bart., whose resignation of that office had been received by the Directors with very deep regret.

The appointment of Colonel F. J. Carruthers was unanimously approved.

Finance.

Sir David Wilson of Carbeth, Bart., Convener of the Finance Committee, submitted the Accounts of the Society for the year to 30th November 1928. The receipts for the year from all sources reached a total of £27,845, 6s. 6d. This sum exceeded the outlays by £2348, 16s. 1d. Annual subscriptions amounted to £2415, 18s. 6d., and life subscriptions to £762, 6s. In the past year the expenditure on educational work amounted to £338, 17s. 8d.; on the work in the chemical and veterinary departments, £500, 15s. 4d.; on the Society's 'Transactions,' £1702, 15s. 9d.; a special grant of £1000 was given to the Rowett Research Institute, Aberdeen, and other special grants amounting to £396, 5s.; premiums and medals for local shows and district competitions, £685, 3s. 6d.; and certificates and medals for long service, £155, 14s. 2d.

He moved approval of the following special grants: £500 towards the Endowment Fund of the Glasgow Veterinary College, subject to the proviso that the £10,000 aimed at by the College is raised within one year from 1st January 1929; £100 for the current year to the Scottish Agricultural Organisation Society; £50 to the Royal (Dick) Veterinary College in aid of an investigation being carried out into the cause of Milk Fever; and £10 to the Scottish Society for the Prevention of Cruelty to Animals.

Mr W. P. Gilmour, Balmangan, Kirkcudbright seconded, and the accounts and grants were approved.

Argyll Naval Fund.

Mr John Elliot, Balnakiel, Galashiels, submitted the report on the Argyll Naval Fund for 1927-28, which showed that the income for the year amounted to £348, 14s. 9d., while the expenditure was £320, comprising grants of £40 each to eight naval cadets.

Aberdeen Show, 1928.

Mr Alexander Forbes, Rettie, Banff, reported on the Show held at Aberdeen on 24th July and three following days. For substance of the report see p. 279 of this volume.

Alloa Show, 1929.

Mr James R. Lumsden of Arden, Convener of the Shows Committee, reported as follows: Arrangements are well advanced for the Show to be held this year at Alloa. The date of the Show has been fixed for the 23rd-26th July inclusive. As previously reported, a site at Alloa Park has been placed at the disposal of the Society, through the courtesy of the President, the Earl of Mar and Kellie, and of the Town Council of Alloa. The site is beautifully situated, ample in extent and convenient of access, and the town of Alloa is co-operating whole-heartedly in the arrangements necessary to ensure the success of the Show. The Prize List, which is at present in course of preparation, will be on the usual liberal scale, the amount to be offered in prizes from the Society's own funds reaching a total of £3846, compared with £2923 at the last Stirling Show in 1921. In addition, there are the usual large number of valuable Challenge Cups, Medals, and Special Prizes, besides prize money contributed by Breed Societies and private donors.

Dumfries Show, 1930.

Mr Robert Macmillan of Holm of Dalquhairn, Woodlea, Moniaive, reported that negotiations were still proceeding with regard to securing a suitable site in the Dumfries Show Division for the Show of 1930. The Directors had, at their Meeting that day, appointed a Committee to visit and inspect the sites available, to discuss the terms on which the use of these may be obtained, and to report.

Hundredth Show, 1931.

Mr Alexander Munro of Leanach, Culloden Moor, Inverness, moved the following resolution: "That, provided a suitable site is available, and satisfactory financial and other arrangements can be made, the Society's Hundredth Show in 1931 be held at Inverness."

Mr Munro said it was with the greatest pleasure that he moved the recommendation which the Directors had agreed to last month. He would like to add to the resolution that the Show be held at Inverness on a large scale. He had been looking up the 'Transactions' of the Society, and he observed, with regard to a Show proposed to be held at Peebles, that Mr Stirton, their Secretary, had given it as his opinion that if the recommendation of the Directors were overturned by the General Meeting it would simply be a vote of censure on the Directors.

The Directors, he continued, were a body appointed to direct the business of a great Society, and he thought it would be a great reflection on them if the considered opinion of the majority of the Directors was overturned at that Meeting. He assured them he had never thought Inverness had such a prominent place on the map as it had to-day when he saw such a great gathering. There was no right or just cause why the decision of their Directors should be departed from. If there was any lady or gentleman in that hall who could plead a right and just cause for Inverness being departed from, he would like to hear the reasons. It was his wish that every one there should endorse that motion for the sake of the Society, and to have every one of them loyal to one another. He hoped nothing else would be put before the Meeting. He was astonished the other day to see that four gentlemen had put a letter in the 'Scotsman.' One of these gentlemen, Bailie Poole, who had seconded Dr Nasmyth at the Directors' Meeting, said at that Meeting that if they lost Edinburgh they would support Inverness every time. When he met Bailie Poole in the Waverley Market after that Meeting, Bailie Poole said that the Edinburgh folk did not want the Show at all. That was one of the men who signed that letter. In Inverness they had the finest site in Scotland for the Highland Society's Show. They had a site of about sixty acres. There never was any water lying on it. There was no broken glass and no dust. The scenery was lovely, and if they supported Inverness, they would give them the finest time they ever had. His motion was that the Hundredth Show in 1931 be held at Inverness on a large scale.

Provost A. M. MacEwen, Inverness, said he felt it a great honour to be asked to second this important resolution at so large and representative a gathering. He had been told that it was one of the largest Meetings ever held in the history of their great Society. He took it that this was evidence of the great interest which had been taken in the question regarding the locus of the Hundredth Show. It had been stated in the Press that it was thought that Inverness should waive its rights. They in the Highlands had never been slow to sacrifice their rights and interests if they thought it was the right thing to do in the interests of patriotism and public duty; but before they were going to sacrifice their rights on this occasion they were entitled to ask those opposed to them on what grounds of patriotism or public duty they were to make that sacrifice. The statement that Inverness should be asked to waive its rights surely implied that there were rights to be waived. Any one familiar with the history of the Society and the objects with which it was originally founded knew that the Society was founded by Highlanders for the Highlands, that its original funds came mainly from the Highlands, with the special object of improving agriculture in the Highlands, and also of cultivating the Gaelic language and literature. It would take overwhelming reasons, he submitted, to show why the ordinary course of justice should not be carried out. He had only seen two reasons mentioned which appeared to count for anything at all. One was the suggestion that, if the Show were held in Inverness, it could not be held on a large scale. The only things that could prevent the Show being on a large scale, provided they had the co-operation of agriculturists in every part of the country, were that the site was not suitable, that the hotel and other accommodation was lacking, and that the means of transport were insufficient.

On all these three practical grounds they could prove up to the hilt that Inverness was not only a suitable place for the Hundredth Show, but that they would not get a better place in the whole of Scotland. The site, of over sixty acres, had every convenience—roads, water, and electric light and power,—and was in beautiful surroundings. As regards accommodation, he thought Inverness, with its surrounding towns and villages, was as well provided with accommodation as any other place in the country. He himself had often found it very difficult to get accommodation in Edinburgh or in Perth. If the Show was to be held in Inverness, the people there would take such measures as they could to see that everybody who came there was accommodated. As regards transport, surely they had ample facilities in that way—transport by road, by rail, by sea, and by canal. The new Perth to Inverness road was one of the finest roads in the country. Nothing was more likely to enhance the attractions of the Show than that people, especially visitors from abroad, should have the opportunity of travelling by that magnificent road to the Highland Show. There was one other objection. It was that the Society was a national Society, and, therefore, the Show should be held in the capital of Scotland. Far be it from him to deny the national claims of the Society, and far be it from him to disparage the beauty, historic charm, and traditions of the city of Edinburgh. Every Scotsman was proud of Edinburgh. But while the Society was a national Society, it was also—and, he thought, predominantly—a Highland Society. If it was a Highland Society, where could this Hundredth Show be more appropriately held than in the capital of the Highlands. It had also been suggested that if they were going to have a large number of foreign and colonial guests they might be more suitably entertained in Edinburgh. He thought they would find that, if these guests came to Edinburgh, before long they would make their way to the Highlands. It would be very fitting, he thought, to give the Hundredth Show that Highland atmosphere which the Highlands only could give, and surely it was appropriate that the Show be held in Inverness. He asked them to consider the reasons on the other side. There was, first of all, the overwhelming reason of justice. In the ordinary course, the 1931 Show would be held in Inverness. Inverness was the only place in Scotland where they could have the Hundredth Show and the Centenary Show at the same time, because it would be the centenary of the first Inverness Show. Surely it would be appropriate when these two things happened that they should be unanimous that the Show should be held in Inverness. After all, they were all practical people, out for the one great object of improving agriculture in Scotland. How could they best improve agriculture in a way that would do credit to the Society ? In Edinburgh and the other great cities, although they had agricultural Shows from time to time, and their usual markets, still agriculture was only one of many interests. If they did not hold this particular Show in Edinburgh or in Perth, it would not matter very much in the long-run. They in the north had only one industry, and it was the industry of agriculture. Every town, every village, every landlord, every large farmer, every small farmer and crofter, was dependent entirely or mainly on agriculture. He asked what opportunity had these people—particularly the small farmers and crofters—of seeing up-to-date methods of agriculture. They could not afford to travel south to see a Show. Yet there was no part of the country where it was more important that up-to-date methods of agriculture and the latest scientific implements should be brought to their knowledge. Since the war the Government had instituted a number of small holdings in the Highlands, mostly given to ex-Service men. Why could not the Society on this occasion help these people by showing them what could be done by up-to-date methods of agriculture, and so retain them in their own country ? It was one of the practices of our time that some of the finest specimens of the race were going abroad because they could not make a living in their own country. He thought it was the duty of such a Society, when occasion did arise, to do something for these people, and to retain one of the finest stocks in the country and keep them on the land. The present was an opportunity which would never recur. Never for three generations would they have a Hundredth Show, never again would they have the opportunity of doing this great service to the Highlands. He appealed to those in the Meeting not to commit an act of injustice, which would leave a sore rankling for ever. As he had said before, if the Show was not held in Edinburgh or Perth, or somewhere else, there might be some regret, but no sense of injustice or bitterness. By holding the Show at Inverness they would be doing a great work, and they would hold it in a place with great traditions, where the people would gladly welcome them. He asked the Meeting to do a simple act of justice, and he asked them to do something for the people in the Highlands, where nature had not favoured them very much in the matter of soil or climate, but where, he thought, they might claim that the people had contributed not a little to the welfare of the nation and the Empire.

The Chairman said that, wherever the Show was held, he thought they would agree that it should be held on a large scale, as it was the Hundredth Show. He suggested that the following words be added to the resolution—" on a large scale, suitable to the Centenary celebration."

The mover and seconder of the Inverness motion agreed to this.

Bailie William Poole, Edinburgh, said that at the end of the Fat Stock Show, held in their city last month, he met Mr Munro of Inverness. He, for his part, did not object to the Highlanders pleading the cause of their district. After the Fat Stock Show dinner they were in rather a cheerful mood, and he did not deny making a remark to Mr Munro to the effect that the ordinary citizen of Edinburgh, or the ordinary citizen of Glasgow, Dumfries, Stirling, or Perth did not take the interest in agricultural matters and agricultural Shows such as the members of that Society took. It was a surprise to him, as also to his colleague, Dr Nasmyth, to have a great amount of pressure put on them to take that matter up, to press it to an issue, and, if possible, to have the Centenary Show of 1931 held in that city. He had been connected with the Highland Society's Shows since the early 'seventies. He had no desire to say one word against their gallant friends from the north, but he would say that there was a great reluctance on the part of the big agricultural engineers throughout the country, especially at the present time, to go to the much greater expense of sending heavy machinery up there to Inverness. From their business experience they knew that several of them had not sent their exhibits to Inverness in past years. No one could deny the fact that Edinburgh was the home and birthplace of the Highland and Agricultural Society. They might deny it, but the fact remained.

The Chairman—Are you moving an amendment ?

Bailie Poole—No.

The Chairman then called for any amendments to the motion.

Mr G. G. Mercer, Southfield, Dalkeith, moved, as an amendment, that the Hundredth Show in 1931 be held in the city of Edinburgh. Had he been asked to do that a month or two ago, he said, he should have refused, because when this matter was first mooted he felt quite strongly and keenly that Inverness seemed to have a prior claim for that honour, but, on looking more carefully into the matter, he began to doubt whether the claim of Inverness was quite as strong as it had been made out to be by the two Inverness speakers. In the first place, he had no hesitation in turning down a recommendation of the Directors of the Society, because, as they had been told, they had done that once before, and they lived afterwards. He did not think the Society suffered. That was a little comfort to those of them who were opposing the Directors' recommendation. They should get rid of sentiment. They had heard a good deal of the sentimental aspect of the question, but was it really the case that on sentimental grounds Inverness had the right to claim what it was claiming ? He did not think it had. The Highland Society was founded in 1784 by men all over the country, and it was founded for the development of the Highlands. There was not the slightest doubt about that, and for many years it carried out that programme. That work was gradually overtaken to a certain extent, and the Society began to look round for a fuller measure in which it might spend its activities. In so doing, it began, in the first place, with a small Show in Edinburgh in 1822. Show followed Show. The Directors of the Society at that date, realising the great benefit that was being conferred by these Shows, applied for a new charter. They got that charter, and henceforth became the Highland and Agricultural Society. That marked the beginning of the national aspect of their Society, and that was the aspect they must not lose sight of.

They had heard that Inverness was quite capable of tackling this Show. He would fain wish it were so, because he had the greatest regard for Inverness. If this were to be an ordinary Show, he would not be on that platform. If they wished to have the Hundredth Show a special Show, and one worthy of the occasion, then they must hold it at a point where they would be able to gather together the finest possible display of stock, the best display of machinery, and the largest concourse of spectators and visitors that it was possible to obtain. These were points on which they must concentrate if they were going to do justice in this case. He wanted nothing else but justice. In 1884, when the hundredth anniversary of the foundation of the Society was observed, Aberdeen stood aside, and that was Inverness's chance. She did not take it. Provost MacEwen must not have been taking an active part then. Aberdeen, all honour to it, showed a good example. They said this was to be an extra event, a special case, and they stood aside, and said, "Have it in Edinburgh." He wished their friends in Inverness could just see their way to make the same magnanimous move that day. If they did, then they would have a big increase in the number of visitors who would journey to the northern capital for their next Show and make it a success.

There was a risk in handling big quantities of stock at a place like Inverness. The implement makers and machinery men could not send the same number of exhibits to Inverness as they could to Edinburgh. Could Inverness accommodate the people that would be anxious to go there ? The Provost of Inverness had said he had had difficulty in getting a bed in a hotel in Edinburgh. He (Mr Mercer) had tremendous difficulty in getting a bed in Inverness in the month of August, when there was no special event on, and what would it be like if they had the Hundredth Show there ? If they had the Show at a central point, where communication was easy and accommodation plentiful, they would attract big numbers from the south of the Border, their friends from the Colonies, and the far-flung parts of the Empire. Where could they see agriculture, agricultural education, and Agricultural Research Institutions on a larger scale than around Edinburgh ? These were all attractions which must weigh with those who would be coming to a Show such as that. He asked them to support his amendment, not only because Edinburgh was a suitable site, but because of the disabilities under which Inverness laboured, disabilities over which it had no control, disabilities for which they were exceedingly sorry, but which nevertheless would nullify the efforts of the Directors to make the Show a great national event.

Mr William Hutcheson, Courthill, Kelso, in seconding, said that in 1926 the

Borderers took the Show to Kelso. If Kelso had lost the Show on that occasion they could not have had a Show there for eight years. He believed the Inverness district would get the Show in 1932. If that was the case, it would be a most gracious thing if Inverness would forego the Hundredth Show, as he was certain, from the bottom of their hearts, they recognised they were not able to hold a Show of such dimensions at Inverness.

Mr George Pitcaithly, West Dron, Bridge of Earn, moved, as a further amendment, that the Hundredth Show in 1931 be held at Perth. He said, with regard to Inverness, it seemed to him that it was 100 miles from the centre of gravity. As for the Edinburgh people, they had to go out to a new Showground, largely artificial, which he did not regard as altogether satisfactory. He supposed everybody wished to make a supreme effort to have the Hundredth Show a huge success. He thought, therefore, they must plank down the Show in a central part of the country. That should be one of the first conditions if they were to make the Show a success. They at Perth offered them a park that was unequalled in the country. The Town Council were willing to block the main thoroughfare and take in the whole of the South Inch. So far as railway transit was concerned, they would get it from the north, south, east, and west. They had plenty of roads, and they had splendid loading and unloading facilities at the stations.

Mr W. J. Brewster Grant, Thorn, Blairgowrie, in seconding, said that, in deference to a request from the Chair for brevity, he would content himself with telling them that there was no finer site than Perth in Scotland.

The Chairman said that, having heard the pros and cons of the question, they would now proceed to vote. He proposed to put the two amendments against each other, and whichever was carried would then be put against the motion. This course was unanimously acquiesced in.

A question was raised as to whether all those present were Members of the Society. The Chairman replied that they were all believed to be Members.

A suggestion was made that the Members vote by passing out at one door and in at another, but, on the motion of Mr Alexander Munro, it was agreed to take the vote by a show of hands.

The movers and seconders of the motion and amendments were appointed to act as Tellers.

The first vote was taken between the two amendments, Perth and Edinburgh. The Tellers reported that the count was 223 for Perth. On a show of hands being taken of those in favour of Edinburgh, the Chairman said the Tellers need not proceed to count, because there was evidently a clear majority in favour of Edinburgh.

The final vote was then taken between Inverness and Edinburgh. The Tellers furnished the figures to the Chairman, who announced the result of the voting as follows:—

Edinburgh	357
Inverness	254
Majority in favour of Edinburgh . .	103

The amendment that the Hundredth Show in 1931 be held in Edinburgh was accordingly declared duly carried.

Mr A. MacNeilage, Glasgow, challenged the figures of the count, on the ground that they did not accord with the attendance in the hall. He asked for a poll of the Members on the Roll of the Society.

Mr R. A. Smith, Wester Lovat, Beauly, seconded.

The Chairman ruled that the motion was out of order. It should have been put before the voting took place.

A motion by Provost MacEwen, Inverness, to the effect that the matter be remitted back to the Directors to consider as to the best method of ascertaining the will of the Society on the subject of the locus of the Hundredth Show was also ruled out of order, and the Meeting proceeded to the next business.

Grants to Local Societies.

The Master of Polwarth, Harden, Hawick, submitted the report on District Shows and Competitions, showing that in 1928 grants of money and medals had been given in 66 districts. The total expenditure under this head amounted to £730, 13s. 5d. For the current year the Directors proposed the following grants: 17 districts for grants of £12 each for cattle, horses, and sheep, and 13 districts in intermediate years with a grant of three silver medals to each; 8 districts for grants of £15 each for stallions; 4 districts for grants of £3 each;

special grants of £10 each to twelve Federations of Scottish Women's Rural Institutes; £20 to Kilmarnock Cheese Show; £15 to Northern Arts and Crafts Society; a gold medal and silver medal to the British Dairymaids' Association; three silver medals for Sir John Fleming Cup Stackyard Competition; 8 districts for two medals each; £8 and eight silver medals to the Scottish National Union of Allotment Holders; long service certificates and medals, say £231, 5s., and the usual medals for ploughing and hoeing competitions, say £127, 8s. 9d., making the total sum offered in 1929, £920, 17s. 6d.

Education.

Mr William Low of Balmakewan, Laurencekirk, reported on the results of the thirty-third examination held last autumn for the National Diploma in Dairying. At the examination in England there were 43 candidates, of whom 24 obtained the diploma and 19 failed; at the examination in Kilmarnock there were 42 candidates, 21 obtaining the diploma and 21 failing. Two Diplomas with Honours were awarded, one at each centre. The names of the successful candidates, as well as the names of the winners of the National Diploma in Agriculture at the examination held last April, would be published in the next volume of 'Transactions.'

Science.

Report by Chemist.

Dr J. F. Tocher, Consulting Chemist to the Society, reported on the work of the department during the year 1928.

The substance of Dr Tocher's report appears on pp. 221-226 of this volume.

Vote of Thanks.

Mr James M'Laren moved a vote of thanks to the President for presiding at the Meeting.

APPENDIX

PREMIUMS

OFFERED BY

THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND IN 1929

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GENERAL NOTICE.

The Highland Society was instituted in the year 1784, and incorporated by Royal Charter in 1787. Its operation was at first limited to matters connected with the improvement of the Highlands of Scotland; but the supervision of certain departments, proper to that part of the country, having been subsequently committed to special Boards of Management, several of the earlier objects contemplated by the Society were abandoned, while the progress of agriculture led to the adoption of others of a more general character. The exertions of the Society were thus early extended to the whole of Scotland, and have since been continuously directed to the promotion of the science and practice of agriculture in all its branches.

In accordance with this more enlarged sphere of action, the original title of the Society was altered, under a Royal Charter, in 1834, to The Highland and Agricultural Society of Scotland.

Among the more important measures which have been effected by the Society are—

1. Agricultural Meetings and General Shows of Stock, Implements, &c., held in the principal towns of Scotland, at which exhibitors from all parts of the United Kingdom are allowed to compete.
2. A system of District Shows instituted for the purpose of improving the breeds of Stock most suitable for different parts of the country, and of aiding and directing the efforts of Local Agricultural Associations.
3. The encouragement of Agricultural Education, under powers conferred by a supplementary Royal Charter, granted in 1856, and authorising the Society to grant Diplomas to Students of Agriculture; and by giving grants in aid of education in Agriculture and allied sciences. In 1900 the Society discontinued its own Examination, and instituted jointly with the Royal Agricultural Society of England an Examination for a National Diploma in Agriculture.
4. The advancement of the Veterinary Art, by conferring Certificates on Students who have passed through a prescribed curriculum, and who are found, by public examination, qualified to practise. Terminated in 1881 in accordance with arrangements with the Royal College of Veterinary Surgeons.
5. The institution of a National Examination in Dairying, jointly with the Royal Agricultural Society of England.
6. The institution of an Examination in Forestry for First and Second Class Certificates.
7. The appointment of a chemist for the purpose of promoting the application of science to agriculture.
8. The establishment of a Botanical Department.
9. The appointment of Entomologist to advise members regarding insect pests.
10. The annual publication of the 'Transactions,' comprehending papers by selected writers, Prize Reports, and reports of experiments, also an abstract of the business at Board and General Meetings, and other communications.
11. The management of a fund left by John, 5th Duke of Argyll (the original President of the Society), to assist young natives of the Highlands who enter His Majesty's Navy.

CONSTITUTION AND MANAGEMENT.

The general business of The Highland and Agricultural Society is conducted under the sanction and control of the Royal Charters, referred to above, which authorise the enactment of Bye-Laws.

The Office-Bearers consist of a President, Four Vice-Presidents, Thirty-two Ordinary and Twenty Extraordinary Directors, a Treasurer, an Honorary and an Acting Secretary, an Auditor, and other Officers.

The Supplementary Charter of 1856 provides for the appointment of a Council on Education, consisting of Sixteen Members—Nine nominated by the Charter and Seven elected by the Society.

PRIVILEGES OF MEMBERS

Members of the Society are entitled—

1. *To receive a free copy of the 'Transactions' annually.*
2. *To apply for District Premiums that may be offered.*
3. *To report Ploughing Matches for Medals that may be offered.*
4. *To Free Admission to the Shows of the Society.*
5. *To exhibit Live Stock and Implements at reduced rates.*[1]
6. *To have Manures and Feeding-Stuffs analysed at reduced fees.*
7. *To have Seeds tested at reduced fees.*
8. *To have Insect Pests and Diseases affecting Farm Crops inquired into.*
9. *To attend and vote at General Meetings of the Society.*
10. *To vote for the Election of Directors, &c., &c.*

ANALYSIS OF MANURES AND FEEDING-STUFFS

The Fees of the Society's Chemist for Analyses made for Members of the Society shall, until further notice, be as follows:—

This scale of fees applies only to Members whose subscriptions are not in arrears.

The determination of *one* ingredient in a single sample of manure or of a feeding-stuff	5s.
The determination of *two or more* ingredients in a single sample of manure or of a feeding-stuff	10s.

These charges apply only to analyses made for agricultural purposes for the sole and private use of Members of the Highland and Agricultural Society who are not engaged in the manufacture or sale of the substances analysed.

The Society's Chemist, if requested, also supplies valuations of manures, according to the Society's scale of units.

SEEDS, CROP DISEASES, INSECT PESTS, &c.

The rates of charges for the examination of plants and seeds, crop diseases, insect pests, &c., will be had on application to the Secretary.

ELECTION OF MEMBERS

Candidates for admission to the Society must be proposed by a Member, and are elected at the half-yearly General Meetings in January and June. It is not necessary that the proposer should attend the Meeting.

CONDITIONS OF MEMBERSHIP

Higher Subscription.—The ordinary annual subscription is £1, 3s. 6d., and the ordinary subscription for life-membership is £12, 12s.; or after ten annual payments have been made, £7, 7s.

Lower Subscription.—Proprietors farming the whole of their own lands, whose rental on the Valuation Roll does not exceed £500 per annum, and all Tenant-Farmers, Secretaries or Treasurers of Local Agricultural Associations, Factors resident on Estates, Land Stewards, Foresters, Agricultural Implement Makers, and Veterinary Surgeons, none of them being also owners of land to an extent exceeding £500 per annum, and such other persons as, in respect of their official or other connection with Agriculture, the Board of Directors may consider eligible, are admitted on a subscription of 10s. annually, which may be redeemed by one payment of £7, 7s., and after eight annual payments of 10s. have been made, a Life Subscription may be purchased for £5, 5s., and after twelve such payments, for £3, 3s.[2] Subscriptions are payable on election, and afterwards annually in January.

According to the Charter, a Member who shall not have objected to his election, on the same being intimated to him by the Secretary, cannot retire until he has paid, in annual subscriptions or otherwise, an amount equivalent to a life composition.

Members are requested to send to the Secretary the names and addresses of Candidates they have to propose (stating whether the Candidates should be on the £1, 3s. 6d. or 10s. list).

JOHN STIRTON, *Secretary.*

3 George IV. Bridge, Edinburgh.

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[1] Firms are not admitted as Members; but if one partner of a firm becomes a Member, the firm is allowed to exhibit at Members' rates.

[2] Candidates claiming to be on the 10s. list must state under which of the above designations they are entitled to be placed.

ESTABLISHMENT FOR 1928-1929.

President.

The Earl of Mar and Kellie, K.T., Alloa Park, Alloa.

Vice-Presidents.

Viscount Younger of Leckie, Gargunnock.
The Earl of Ancaster, Drummond Castle, Crieff.
J. E. Kerr of Harviestoun, Dollar.
Sir Iain Colquhoun of Colquhoun and Luss, Bart., Rossdhu, Luss.

Ordinary Directors.

Year of Election.	
1925	James M'Laren, Cornton, Bridge of Allan.
	W. P. Gilmour, Balmangan, Kirkcudbright.
	Peter Grant, Mains, Advie, Morayshire.
	William O. Hunter of Arngask, Glenfarg.
	The Hon. T. G. P. Corbett, Rowallan, Kilmarnock.
	Athole S. Hay of Marlefield, Roxburgh.
	Dr Thomas G. Nasmyth, Canaan Lodge, 43 Canaan Lane, Edinburgh.
	Alfred H. Reid, Hillhead, Ellon.
1926	James M'Queen of Crofts, Dalbeattie.
	Alexander Munro of Leanach, Culloden Moor, Inverness.
	Alexander Niven of Collairnie, Ladybank.
	Norman H. Constable, Bute Estate Office, Rothesay.
	J. P. Ross Taylor, Mungoswalls, Duns. (Elected 4th January 1928.)
	Phipps O. Turnbull, Smeaton, Dalkeith.
	James Durno, Crichie, Inverurie.
	Brig.-General Archibald Stirling of Keir, Dunblane.
1927	Lieut.-Col. Thomas W. Cuthbert, C.M.G., D.S.O., Achindunie, Alness.
	William Meiklem, Bennochy Park, Kirkcaldy.
	Sir Thomas Paxton, Bart., LL.D., 22-28 Adelphi Street, Glasgow.
	The Hon. Walter T. H. Scott, Master of Polwarth, Harden, Hawick.
	Sir James Inglis Davidson, Saughton Mains, Corstorphine.
	George Grant, Glenfarclas, Blacksboat.
	John W. Prentice, Craigrie Farm, Clackmannan.
	James M'Clean, Craigmount, Portpatrick.
1928	Archibald Whyte, Spott, Kirriemuir.
	Alexander Murdoch, East Hallside, Hallside, Lanarkshire.
	Thomas Templeton, Sandyknowe, Kelso.
	Robert Park, Brunstane, Portobello.
	Colonel Robert W. Walker, Portlethen, Aberdeen.
	James R. Lumsden of Arden, Dumbartonshire.
	....
	John Robson, jun., Lynegar, Watten, Caithness.

Extraordinary Directors.

1927
Alexander Forbes, Rettie, Banff.
The Earl of Elgin and Kincardine, C.M.G., Broomhall, Dunfermline.
Major Robert W. Sharpe of The Park, Earlston.
Bailie William Poole, J.P., Englewood, Blackhall.
A. A. Hagart Speirs of Elderslie, Houston House, Houston.

1928
William Low of Balmakewan, Laurencekirk.
Robert Macmillan of Holm of Dalquhairn, Woodlea, Moniaive.
William S. Niven, The Loan, Errol.
John Elliot, Balnakiel, Galashiels.

Show District.

1928
A. Y. Allan, Aitkenbar, Dumbarton.
William Carrick, Newlands, Stirling.
W. Betts Donaldson of Auchineden, Blanefield.
James Gray, Glenoonah, Kippen Station.
Robert M'Gee, Blackfaulds, Sauchie, Alloa.
Peter M'Intyre, Tighnablair, Comrie.
William M'Laren, Inch, Kincardine-on-Forth.
Provost A. P. Moir, Alloa.
W. Watson Murray, Catter House, Drymen.

Office-Bearers.

Sir David Wilson, Bart., D.Sc., of Carbeth, Killearn, *Treasurer.*
Colonel F. J. Carruthers of Dormont, Lockerbie, *Honorary Secretary.*
The Very Rev. Charles L. Warr, M.A., 63 Northumberland Street, *Chaplain.*
John Stirton, *Secretary.*
J. G. Yardley, *Chief Clerk.*
George James Gregor, C.A., 8 York Place, *Auditor.*
J. F. Tocher, D.Sc., F.I.C., 41½ Union Street, Aberdeen, *Chemist.*
Professor R. Stanfield, A.R.S.M., M.Inst.C.E., F.R.S.E., 24 Mayfield Gardens, *Consulting Engineer.*
R. S. MacDougall, M.A., D.Sc., Ivy Lodge, Gullane, *Consulting Entomologist.*
Todd, Murray, & Jamieson, W.S., 66 Queen Street, *Law Agents.*
William Blackwood & Sons Ltd., 45 George Street, *Publishers.*
Henry Munro, Ltd., 82 Mitchell Street, Glasgow, *Advertising Agents.*
Hamilton & Inches, Princes Street, *Silversmiths.*
Alexander Kirkwood & Son, 9 St James' Square, *Medallists.*
John Reid, 55 Blenheim Place, Aberdeen, *Showyard Erector.*
Charles J. Balfour, *Officer.*

Chairman of Board of Directors.

James M'Laren, Cornton, Bridge of Allan.

Chairmen of Committees.

1.	*Argyll Naval Fund* . .	Maclachlan of Maclachlan, Castle Lachlan, Strachur.
2.	*Finance, Chambers, and Law*	Sir David Wilson, Bart., D.Sc., of Carbeth, Killearn.
3.	*Publications* . . .	Colonel F. J. Carruthers of Dormont, Lockerbie.
4.	*Shows*	James R. Lumsden of Arden, Dumbartonshire.
5.	*Implements and Machinery*	William Low of Balmakewan, Laurencekirk.
6.	*Science*	Sir David Wilson, Bart., D.Sc., of Carbeth, Killearn.
7.	*General Purposes* . .	James M'Laren, Cornton, Bridge of Allan.
8.	*Education*	Colonel F. J. Carruthers of Dormont, Lockerbie.
9.	*Forestry*	Sir Hugh Shaw Stewart, Bart., C.B., of Ardgowan, Inverkip.
10.	*Office-Bearers* . . .	James M'Laren, Cornton, Bridge of Allan.

COMMITTEES FOR 1928-1929.

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1. ARGYLL NAVAL FUND.

Maclachlan of Maclachlan, Castle Lachlan, Strachur, *Convener.*
The Earl of Elgin and Kincardine, C.M.G., Broomhall, Dunfermline.
Colonel Sir John Gilmour, Bart., M.P., D.S.O., of Montrave, Leven.
Sir Kenneth Mackenzie of Gairloch, Bart., Conan House, Conon Bridge, Ross-shire.
Sir Hugh Shaw Stewart, Bart., C.B., of Ardgowan, Inverkip.
Brig.-General Archibald Stirling of Keir, Dunblane.
James M'Laren, Cornton, Bridge of Allan, Chairman, *ex officio.*
Sir David Wilson, Bart., D.Sc., of Carbeth, Killearn, Treasurer, *ex officio.*
Colonel F. J. Carruthers of Dormont, Lockerbie, Hon. Secretary, *ex officio.*

2. FINANCE, CHAMBERS, AND LAW.

Sir David Wilson, Bart., D.Sc., of Carbeth, Killearn, Treasurer, *Convener.*
Sir James Inglis Davidson, Saughton Mains, Corstorphine.
James Durno, Crichie, Inverurie.
The Earl of Elgin and Kincardine, C.M.G., Broomhall, Dunfermline.
John Elliot, Balnakiel, Galashiels.
William C. Hunter of Arngask, Glenfarg.
J. Ernest Kerr of Harviestoun, Dollar.
James R. Lumsden of Arden, Dumbartonshire.
James M'Laren, Cornton, Bridge of Allan.
Robert Macmillan of Holm of Dalquhairn, Woodlea, Moniaive.

James M'Queen of Crofts, Dalbeattie.
Alexander Murdoch, East Hallside, Hallside, Lanarkshire.
Phipps O. Turnbull, Smeaton, Dalkeith.
Colonel F. J. **Carruthers** of Dormont, Lockerbie, Hon. Secretary, *ex officio.*
George James Gregor, C.A., Auditor, *ex officio.*

3. PUBLICATIONS.

Colonel F. J. **Carruthers** of Dormont, Lockerbie, Hon. Secretary, *Convener.*
Norman H. Constable, Bute Estate Office, Rothesay.
James Durno, Crichie, Inverurie.
Alexander Forbes, Rettie, Banff.
George Grant, Glenfarclas, Blacksboat.
Athole S. Hay of Marlefield, Roxburgh.
William Low of Balmakewan, Laurencekirk.
James R. Lumsden of Arden, Dumbartonshire.
Robert Macmillan of Holm of Dalquhairn, Woodlea, Moniaive.
Alexander Murdoch, East Hallside, Hallside, Lanarkshire.
Dr **Thomas G. Nasmyth**, Canaan Lodge, 43 Canaan Lane, Edinburgh.
The Hon. **Walter T. H. Scott**, Master of Polwarth, Harden, Hawick.
Brig.-General **Archibald Stirling** of Keir, Dunblane.
Phipps O. Turnbull, Smeaton, Dalkeith.
James M'Laren, Cornton, Bridge of Allan, Chairman, *ex officio.*
Sir **David Wilson**, Bart., D.Sc., of Carbeth, Killearn, Treasurer, *ex officio.*

4. SHOWS.

James R. Lumsden of Arden, Dumbartonshire, *Convener.*
Colonel F. J. **Carruthers** of Dormont, Lockerbie, Hon. Secretary, *Vice-Convener.*
A. Y. **Allan**, Aitkenbar, Dumbarton.
William Carrick, Newlands, Stirling.
Norman H. Constable, Bute Estate Office, Rothesay.
The Hon. T. G. P. **Corbett**, Rowallan, Kilmarnock.
Lieut.-Col. **Thomas W. Cuthbert**, C.M.G., D.S.O., Auchindunie, Alness.
Sir **James Inglis Davidson**, Saughton Mains, Corstorphine.
W. **Betts Donaldson** of Auchineden, Blanefield.
James Durno, Crichie, Inverurie.
The **Earl of Elgin and Kincardine**, C.M.G., Broomhall, Dunfermline.
John Elliot, Balnakiel, Galashiels.
Alexander Forbes, Rettie, Banff.
W. P. **Gilmour**, Balmangan, Kirkcudbright.
George Grant, Glenfarclas, Blacksboat.
Peter Grant, Mains, Advie, Morayshire.
James Gray, Glenoonah, Kippen Station.
Athole S. Hay of Marlefield, Roxburgh.
William C. Hunter of Arngask, Glenfarg.
J. **Ernest Kerr** of Harviestoun, Dollar.
William Low of Balmakewan, Laurencekirk.
James M'Clean, Craigmount, Portpatrick.
Robert M'Gee, Blackfaulds, Sauchie, Alloa.
Peter M'Intyre, Tighnablair, Comrie.
James M'Laren, Cornton, Bridge of Allan.
William M'Laren, Inch, Kincardine-on-Forth.

ROBERT MACMILLAN of Holm of Dalquhairn, Woodlea, Moniaive.
JAMES M'QUEEN of Crofts, Dalbeattie.
WILLIAM MEIKLEM, Bennochy Park, Kirkcaldy.
Provost A. P. MOIR, Alloa.
ALEXANDER MUNRO of Leanach, Culloden Moor, Inverness.
ALEXANDER MURDOCH, East Hallside, Hallside, Lanarkshire.
W. WATSON MURRAY, Catter House, Drymen.
Dr THOMAS G. NASMYTH, Canaan Lodge, 43 Canaan Lane, Edinburgh.
ALEXANDER NIVEN of Collairnie, Ladybank.
WILLIAM S. NIVEN, The Loan, Errol.
ROBERT PARK, Brunstane, Portobello.
Sir THOMAS PAXTON, Bart., LL.D., 22-28 Adelphi Street, Glasgow.
Bailie WILLIAM POOLE, J.P., Englewood, Blackhall.
JOHN W. PRENTICE, Craigrie Farm, Clackmannan.
ALFRED H. REID, Hillhead, Ellon.
JOHN ROBSON, jun., Lynegar, Watten, Caithness.
The Hon. WALTER T. H. SCOTT, Master of Polwarth, Harden, Hawick.
Major ROBERT W. SHARPE of The Park, Earlston.
A. A. HAGART SPEIRS of Elderslie, Houston House, Houston.
Brig.-General ARCHIBALD STIRLING of Keir, Dunblane.
J. P. ROSS TAYLOR, Mungoswalls, Duns.
THOMAS TEMPLETON, Sandyknowe, Kelso.
PHIPPS O. TURNBULL, Smeaton, Dalkeith.
Colonel ROBERT W. WALKER, Portlethen, Aberdeen.
ARCHIBALD WHYTE, Spott, Kirriemuir.
Sir DAVID WILSON, Bart., D.Sc., of Carbeth, Killearn, Treasurer, *ex officio*.
Professor R. STANFIELD, 24 Mayfield Gardens, Edinburgh, Engineer, *ex officio*.

5. IMPLEMENTS AND MACHINERY.

WILLIAM LOW of Balmakewan, Laurencekirk, *Convener*.
Bailie WILLIAM POOLE, J.P., Englewood, Blackhall, *Vice-Convener*.
NORMAN H. CONSTABLE, Bute Estate Office, Rothesay.
ALEXANDER FORBES, Rettie, Banff.
W. P. GILMOUR, Balmangan, Kirkcudbright.
JAMES M'LAREN, Cornton, Bridge of Allan.
WILLIAM MEIKLEM, Bennochy Park, Kirkcaldy.
ALEXANDER MUNRO of Leanach, Culloden Moor, Inverness.
WILLIAM S. NIVEN, The Loan, Errol.
JOHN W. PRENTICE, Craigrie Farm, Clackmannan.
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PHIPPS O. TURNBULL, Smeaton, Dalkeith.
Colonel ROBERT W. WALKER, Portlethen, Aberdeen.
Sir DAVID WILSON, Bart., D.Sc., of Carbeth, Killearn, Treasurer, *ex officio*.
Colonel F. J. CARRUTHERS of Dormont, Lockerbie, Hon. Secretary, *ex officio*.
Professor STANFIELD, 24 Mayfield Gardens, Edinburgh, Engineer, *ex officio*.

6. SCIENCE.

Sir DAVID WILSON, Bart., D.Sc., of Carbeth, Killearn, Treasurer, *Convener*.
ALEXANDER FORBES, Rettie, Banff, *Vice-Convener*.
The Hon. T. G. P. CORBETT, Rowallan, Kilmarnock.

Sir **James Inglis Davidson**, Saughton Mains, Corstorphine.
James Durno, Crichie, Inverurie.
The **Earl of Elgin and Kincardine**, C.M.G., Broomhall, Dunfermline.
W. P. **Gilmour**, Balmangan, Kirkcudbright.
Peter Grant, Mains, Advie, Morayshire.
Athole S. Hay of Marlefield, Roxburgh.
William C. Hunter of Arngask, Glenfarg.
J. **Ernest Kerr** of Harviestoun, Dollar.
William Low of Balmakewan, Laurencekirk.
James R. Lumsden of Arden, Dumbartonshire.
James M'Clean, Craigmount, Portpatrick.
James M'Laren, Cornton, Bridge of Allan.
Robert Macmillan of Holm of Dalquhairn, Woodlea, Moniaive.
James M'Queen of Crofts, Dalbeattie.
Alexander Munro of Leanach, Culloden Moor, Inverness.
Alexander Murdoch, East Hallside, Hallside, Lanarkshire.
Dr **Thomas G. Nasmyth**, Canaan Lodge, 43 Canaan Lane, Edinburgh.
Alfred H. Reid, Hillhead, Ellon.
Major **Robert W. Sharpe** of The Park, Earlston.
A. A. **Hagart Speirs** of Elderslie, Houston House, Houston.
Brig.-General **Archibald Stirling** of Keir, Dunblane.
J. P. **Ross Taylor**, Mungoswalls, Duns.
Thomas Templeton, Sandyknowe, Kelso.
Phipps O. Turnbull, Smeaton, Dalkeith.
Archibald Whyte, Spott, Kirriemuir.
Colonel F. J. **Carruthers** of Dormont, Lockerbie, Hon. Secretary, *ex officio*.
Dr J. F. **Tocher**, 41½ Union Street, Aberdeen, Chemist, *ex officio*.
R. S. **MacDougall**, M.A., D.Sc., Ivy Lodge, Gullane, Zoologist, *ex officio*.

7. GENERAL PURPOSES.

James M'Laren, Cornton, Bridge of Allan, Chairman, *Convener*.
Sir **James Inglis Davidson**, Saughton Mains, Corstorphine.
John Elliot, Balnakiel, Galashiels.
William C. Hunter of Arngask, Glenfarg.
Robert Macmillan of Holm of Dalquhairn, Woodlea, Moniaive.
James M'Queen of Crofts, Dalbeattie.
William Meiklem, Bennochy Park, Kirkcaldy.
Alexander Murdoch, East Hallside, Hallside, Lanarkshire.
Dr **Thomas G. Nasmyth**, Canaan Lodge, 43 Canaan Lane, Edinburgh.
Robert Park, Brunstane, Portobello.
Bailie **William Poole**, J.P., Englewood, Blackhall.
Phipps O. Turnbull, Smeaton, Dalkeith.
Sir **David Wilson**, Bart., D.Sc., of Carbeth, Killearn, Treasurer, *ex officio*.
Colonel F. J. **Carruthers** of Dormont, Lockerbie, Hon. Secretary, *ex officio*.

8. EDUCATION.

Colonel F. J. **Carruthers** of Dormont, Lockerbie, Hon. Secretary, *Convener*.
The **Earl of Elgin and Kincardine**, C.M.G., Broomhall, Dunfermline.
William Low of Balmakewan, Laurencekirk.
James M'Laren, Cornton, Bridge of Allan.
Sir **David Wilson**, Bart., D.Sc., of Carbeth, Killearn.
John Stirton, *Secretary*, Highland and Agricultural Society.

9. FORESTRY.

Sir Hugh Shaw Stewart, Bart., C.B., of Ardgowan, Inverkip, *Convener.*
The Duke of Atholl, K.T., G.C.V.O., C.B., D.S.O., Blair Castle, Blair-Atholl.
Sir James Inglis Davidson, Saughton Mains, Corstorphine.
The Earl of Elgin and Kincardine, C.M.G., Broomhall, Dunfermline.
Sir John R. Findlay of Aberlour, 3 Rothesay Terrace, Edinburgh.
Lord Forteviot, Dupplin Castle, Perth.
Walter Stewart Fothringham of Fothringham and Murthly, Murthly Castle, Perth.
Colonel Sir John Gilmour, Bart., M.P., D.S.O., of Montrave, Leven.
The Earl of Home, Springhill, Coldstream.
J. H. Milne Home, Irvine House, Canonbie.
James R. Lumsden of Arden, Dumbartonshire.
A. D. Macdonald, Dundas Estate Office, South Queensferry.
Sir Kenneth Mackenzie of Gairloch, Bart., Conan House, Conon Bridge, Ross-shire.
Maclachlan of Maclachlan, Castle Lachlan, Strachur.
J. T. M'Laren, The Leuchold, Dalmeny House, Edinburgh.
James M'Queen of Crofts, Dalbeattie.
Sir Herbert E. Maxwell of Monreith, Bart., Whauphill.
Sir John Maxwell Stirling Maxwell of Pollok, Bart., Pollok House, Pollokshaws.
Lord Polwarth, Humbie House, Upper Keith.
A. A. Hagart Speirs of Elderslie, Houston House, Houston.
Major Mark Sprot of Riddell, Lilliesleaf.
The Earl of Stair, D.S.O., Lochinch, Castle Kennedy.
Brig.-General Archibald Stirling of Keir, Dunblane.
James M'Laren, Cornton, Bridge of Allan, Chairman, *ex officio.*
Sir David Wilson, Bart., D.Sc., of Carbeth, Killearn, Treasurer, *ex officio.*
Colonel F. J. Carruthers of Dormont, Lockerbie, Hon. Secretary, *ex officio.*

10. OFFICE-BEARERS.

Constitution: (1) The four Ordinary Directors for the district in which the Show for the year is to be held (with the exception of one retiring next year); (2) one Ordinary Director from each of the other Show districts; and (3) the Chairman of the Board, Hon. Secretary, and Treasurer, *ex officiis.*

Dumfries .	James M'Queen of Crofts, Dalbeattie. James M'Clean, Craigmount, Portpatrick.
Inverness .	Alexander Munro of Leanach, Culloden Moor, Inverness.
Perth . .	Archibald Whyte, Spott, Kirriemuir.
Glasgow .	Alexander Murdoch, East Hallside, Hallside, Lanarkshire.
Borders .	The Hon. Walter T. H. Scott, Master of Polwarth, Harden, Hawick.
Edinburgh	Phipps O. Turnbull, Smeaton, Dalkeith.
Aberdeen .	James Durno, Crichie, Inverurie.
Stirling .	Brig.-General Archibald Stirling of Keir, Dunblane.

James M'Laren, Cornton, Bridge of Allan, Chairman, *ex officio.*
Sir David Wilson, Bart., D.Sc., of Carbeth, Killearn, Treasurer, *ex officio.*
Colonel F. J. Carruthers of Dormont, Lockerbie, Hon. Secretary, *ex officio.*

REPRESENTATIVES ON OTHER BODIES.

National Agricultural Examination Board and National Dairy Examination Board.

Colonel F. J. Carruthers of Dormont, Lockerbie.
The Earl of Elgin and Kincardine, C.M.G., Broomhall, Dunfermline.
William Low of Balmakewan, Laurencekirk.
James M'Laren, Cornton, Bridge of Allan.
Sir David Wilson, Bart., D.Sc., of Carbeth, Killearn.
John Stirton, *Secretary*, Highland and Agricultural Society.

Edinburgh and East of Scotland College of Agriculture.

John Stirton, *Secretary*, Highland and Agricultural Society.

West of Scotland Agricultural College.

Sir Hugh Shaw Stewart, Bart., C.B., of Ardgowan, Inverkip.

Aberdeen and North of Scotland College of Agriculture.

Dr J. F. Tocher, 41½ Union Street, Aberdeen.

Royal (Dick) Veterinary College.

Dr Thomas G. Nasmyth, Canaan Lodge, 43 Canaan Lane, Edinburgh.

Glasgow Veterinary College.

Alexander Murdoch, East Hallside, Hallside, Lanarkshire.

Scottish Milk Records Association.

W. P. Gilmour, Balmangan, Kirkcudbright.
Alexander Munro of Leanach, Culloden Moor, Inverness.
Alexander Murdoch, East Hallside, Hallside, Lanarkshire.

SCOTTISH PLANT REGISTRATION STATION.

Standing Committee of Management.

Sir David Wilson, Bart., D.Sc., of Carbeth, Killearn.
James Elder, Athelstaneford Mains, Drem.
G. Bertram Shields, Rosebery Farm, Gorebridge, Mid-Lothian.

Appointed for 5 years from 1st January 1926.

Association for the Preservation of Rural Scotland.

Athole S. Hay of Marlefield, Roxburgh.

Scottish National Milk and Health Association.

W. P. Gilmour, Balmangan, Kirkcudbright.
Alexander Murdoch, East Hallside, Hallside, Lanarkshire.

MEETINGS.

General Meetings.—By the Charter the Society must hold two General Meetings each year, and, under ordinary circumstances, they are held in the months of January and June, for the election of Members and other business. Twenty a quorum.

By a resolution of the General Meeting on 15th January 1879, a General Meeting of Members is held in the Showyard on the occasion of the Annual Show. This year it will be held at Alloa on the Wednesday of the Show, at an hour to be announced in the programme of the Show.

With reference to motions at General Meetings, Bye-Law No. 10 provides—"That at General Meetings of the Society no motion or proposal (except of mere form or courtesy) shall be submitted or entertained for immediate decision unless notice thereof has been given a week previously to the Board of Directors, without prejudice, however, to the competency of making such motion or proposal to the effect of its being remitted to the Directors for consideration, and thereafter being disposed of at a future General Meeting."

General Show at Alloa.—23rd, 24th, 25th, and 26th July.—Entries close for Implements, 6th May; Stock, Poultry, Dairy Produce, &c., 30th May; Rabbits and Honey, 20th June; Live Stock Judging Competition, 9th July.

Directors' Meetings.—The Board of Directors meet (except when otherwise arranged) on the first Wednesday of each month from November till June inclusive, at half-past one o'clock P.M., and occasionally as business may require, on a requisition by three Directors to the Secretary, or on intimation by him. Seven a quorum.

Committee Meetings.—Meetings of the various Committees are held as required.

Nomination of Directors.—Meetings of Members, for the purpose of nominating Directors to represent the Show Divisions on the Board for the year 1930-1931, will be held at the places and on the days after mentioned:—

1.	Edinburgh, Market Buildings, Gorgie,	Wed., 29th Jan. 1930, at 1.
2.	Glasgow, North British Railway Hotel,	Wed., 12th Feb. 1930, at 1.
3.	Stirling, Golden Lion Hotel,	Thur., 13th Feb. 1930, at 1.30.
4.	Cupar, County Buildings,	Tues., 18th Feb. 1930, at 2.
	(*In* 1931 *the Meeting will be held at Cupar; in* 1932 *and* 1933 *at Perth.*)	
5.	Border, Railway Hotel, St Boswells,	Thur., 20th Feb. 1930, at 1.30.
6.	Aberdeen, Imperial Hotel,	Fri., 28th Feb. 1930, at 2.30.
7.	Inverness, Station Hotel,	Tues., 4th Mar. 1930, at 2.
8.	Dumfries, King's Arms Hotel,	Wed., 12th Mar. 1930, at 2.15.

The nomination of a Proprietor or other Member paying the higher subscription must be made in the 3rd, 6th, 7th, and 8th Divisions; and the nomination of a Tenant-Farmer or other Member paying the lower subscription, in the 1st, 2nd, 4th, and 5th Divisions.

Retiring Directors are not eligible for re-election until after the lapse of at least one year.

EXAMINATIONS.

Agriculture.—The Examination for 1929 for the National Diploma in Agriculture will be held at the University, Leeds, on Thursday, 11th April 1929, and following days. Entries close on 20th February.

Dairying.—The Examination for 1929 for the National Diploma in Dairying will be held at the Dairy School, Kilmarnock: *Written*—On Thursday, Friday, and Saturday, 5th, 6th, and 7th September 1929; *Oral and Practical*—On Monday, 16th September 1929, and following days. Entries close on 3rd August.

Forestry.—The Examination for the Society's Certificates in Forestry will be held at 8 Eglinton Crescent, Edinburgh, in the month of March 1930.

AGRICULTURAL EDUCATION

By a Supplementary Charter under the Great Seal, granted in 1856, the Society is empowered to grant Diplomas.

From 1858 to 1899 the Society held an annual Examination for Certificate and Diploma in Agriculture. In 1872 the Free Life Membership of the Society was granted to winners of the Diploma. In 1884 permission was given to holders of the Diploma to append the letters F.H.A.S. to their names.

In 1898 it was resolved by the Royal Agricultural Society of England and the Highland and Agricultural Society of Scotland to discontinue the independent Examinations in Agriculture held by the two Societies, and to institute in their stead a Joint-Examination for a NATIONAL DIPLOMA IN AGRICULTURE (N.D.A.) This Examination is now conducted under the management of the "National Agricultural Examination Board" appointed by the two Societies. In the year 1903, on the invitation of the two Societies, the Ministry of Agriculture and Fisheries and the Scottish Education Department agreed to appoint a representative from each to act on the Examination Board. Sir Daniel Hall, K.C.B., represents the former, and the late Sir John Struthers, K.C.B., represented the latter body up till 1921, and thereafter continued as a co-opted member of the Board till his death in 1925. In 1921 the Board of Agriculture for Scotland was invited to appoint a representative, and has since that date been represented by Sir Robert B. Greig, M.C., LL.D.

REGULATIONS FOR EXAMINATION IN THE SCIENCE AND PRACTICE OF AGRICULTURE

1. The Societies may hold conjointly, under the management of the National Agricultural Examination Board appointed by them, an Annual Examination in the Science and Practice of Agriculture, at a convenient centre.

2. Candidates who pass the Examination will receive the National Diploma in Agriculture—the Diploma to be distinguished shortly by the letters "N.D.A."

3. The Examination will be conducted by means of written papers and oral examinations.

4. In order to be eligible to sit for the Board's Examination in Agriculture, a candidate must—

(*a*) Present a certificate from a recognised Agricultural College that his attainments in the subjects of *General Botany*, *Geology*, *General Chemistry*, *Physics*, *and Mechanics*, as attested by class and other examinations, are, in the opinion of the authorities of the College, such as to justify his admission to the Board's Examination ; *or*

(*b*) Produce evidence that he has passed the 1st B.Sc. or the Intermediate Examination in Science of a British University ; *or*

(*c*) Present a Senior Certificate obtained at the Local Examinations of the Universities of Oxford or Cambridge, and produce evidence that he has continued his study of science for at least a year, and has obtained a certificate in Subject 3 (*a*) Elementary Chemistry and Physics, (*b*) Botany of Group H of the Oxford Higher Local Examination, *or* in Subjects 1, Elementary Chemistry and Physics, and 4, Botany of Group E of the Cambridge Higher Local Examination ; *or*

(*d*) Present an Intermediate Leaving Certificate of the Scottish Education Department, and produce evidence that he has continued his studies for at least another year and has obtained the Higher Leaving Certificate in Science (including Chemistry and Botany).

5. In the case of students who satisfy the Board that they have not had the facilities for obtaining the foregoing certificates, the Board will be prepared to consider evidence of equivalent attainment. [Applications under this rule must be lodged *three months* before the date of the annual examination.]

6. *Before sitting for the* PRACTICAL AGRICULTURE *and* FARM MACHINERY AND IMPLEMENTS *papers, all candidates must produce evidence of possessing a practical knowledge of Agriculture obtained by residence on a farm for a period or periods (not more than two) covering a complete year of farming operations.*

7. Candidates will have the option of taking the whole of the following nine papers at one time, or of sitting for a group of any three, four, or five in the first year and the remaining subjects (at one examination) within the next two years :—

SUBJECT.	Maximum Marks.	Pass Marks.
1. Practical Agriculture (First Paper)	400	240
2. Practical Agriculture (Second Paper)	400	240
3. Farm Machinery and Implements	300	150
4. Land Surveying and Farm Buildings	100	50
5. Agricultural Chemistry	200	100
6. Agricultural Botany	200	100
7. Agricultural Book-keeping	200	100
8. Agricultural Zoology	100	50
9. Veterinary Science and Hygiene	200	100
	2100	1130

NOTE.—Candidates taking the Examination in two groups of subjects are recommended to take Agricultural Chemistry and Agricultural Botany in the first group.

8. A candidate who obtains not less than three-fourths (1575) of the aggregate maximum marks (2100) in the entire Examination will receive the Diploma with Honours, provided that he obtains not less than three-fourths (600) of the maximum marks (800) in the two Practical Agriculture papers.

9. Candidates electing to take the entire Examination at one time and failing in not more than three subjects may appear for these subjects in the following year. Failure in more than three subjects will be regarded as failure in the whole Examination.

10. In the case of candidates electing to take the Examination in two groups—

(*a*) A candidate appearing for a group of *three* subjects and failing in a single subject may, *in the case of a first group*, appear for that subject along with the second group, or, *in the case of a second group*, in the following year. Failure in more than one subject will be regarded as failure in the group.

(*b*) A candidate appearing for a group of *four* or more subjects and failing in not more than two subjects may, *in the case of a first group*, appear for these subjects along with the second group, or, *in the case of a second group*, in the following year. Failure in more than two subjects will be regarded as failure in the group.

11. Non-returnable fees must be paid by candidates as follows :—

Entire Examination	**Six guineas.**
Group of Subjects	**Three guineas.**
Reappearance for any Subjects	**10/6 per Subject.**

12. The Board reserve the right to postpone, abandon, or in any way, or at any time, modify an Examination, and also to decline at any stage to admit any particular candidate to the Examination.

The Examination will take place at Leeds University on THURSDAY, 11th APRIL 1929, and following days.

Forms of application for permission to sit at the Examination may be obtained from "The Secretary, Royal Agricultural Society of England, 16 Bedford Square, London, W.C. 1," or from "The Secretary, Highland and Agricultural Society of Scotland, 3 George IV. Bridge, Edinburgh," and must be returned duly filled up not later than WEDNESDAY, 20th FEBRUARY 1929, when the Entries will close.

16 BEDFORD SQUARE, LONDON, W.C. 1,
December 1928.

SYLLABUS OF SUBJECTS OF EXAMINATION

PRACTICAL AGRICULTURE.

I.—FIRST PAPER.

1. *British Farming.*—Arable, stock-raising, dairying—Approximate areas covered by the different systems—Typical examples of each—Area in Great Britain under chief crops—Numbers of live stock—The recent history of agriculture—Short summary of agricultural returns.

2. *Climate.*—The effect of climate on farming practice—Rainfall—Temperature—Prevailing winds—Weather forecasts.

3. *Soils.*—The influence of geological formations on the systems of farming—Classification of soils—Character and composition—Suitability for cultivation—Reclamation—Drainage—Irrigation—Warping—Application of lime and marl—Bare fallows—Tillage—Subsoiling—Deep and thorough cultivation.

4. *Manures.*—The manures of the farm—The treatment of farmyard manure—The disposal of liquid manure and sewage—General manures—Special manures—Field trials of manures—The application of manures—Period of application and amounts used per acre—Unexhausted value of manures and feeding-stuffs.

5. *Crops.*—Wheat, barley, oats, rye, beans, peas, potatoes, turnips, swedes, mangolds, forage plants, hops, and other crops—Their adaptation to different soils and climates—Varieties—Selection of seed—Judging seeds—Cultivation, weeds and parasitic plants, best methods of prevention and eradication—Harvesting—Storing—Cost of production—Improvement of crops by selection and hybridising—Field trials—Methods which the farmer may adopt—Selection to resist disease—The principles of rotations—Rotations suitable for different soils and climates—Rotations and the maintenance of fertility—Green manuring—Leguminous crops in rotation—Catch crops—The advantages and disadvantages of rotations—Specialised farming—Management of Orchards.

II.—SECOND PAPER.

6. *Live Stock.*—The different breeds of British live stock—Their origin, characteristics, and comparative merits—Suitability for different districts—Breeding—General principles—Selection—Mating—Crossing—Rearing and general management—Breeding and rearing of horses, cattle, sheep, pigs, and poultry—Rearing colts and raising store stock—The foods of the farm—Their composition and suitability for different classes of stock—Purchased foods—Composition and special value—Rations for different kinds and ages of stock—Cost of producing beef, mutton, pork, and milk—Cost of feeding farm horses.

7. *The disposal of Crop, Produce, and Stock.*—Marketing grain and other crops—Sale of stock—Live weight—Dead weight.

8. *Milk.*—The production and treatment of milk—The manufacture of cheese, butter, &c.—The utilisation of by-products.

9. *Farming Capital.*—Calculations of the stocking and working of arable, stock, and dairy farms—Farm valuations—Rent and taxes.

10. *Labour.*—Organisation of labour—piece-work, time-work—labour costings.

11. *Renting a Farm.*—Indications of condition, productive power, and stock-carrying capacity—Leases—Conditions of occupancy.

N.B.—*It is essential that a candidate know his subject practically, and that he satisfy the Examiner of his familiarity with farm work and management.*

III.—FARM MACHINERY AND IMPLEMENTS.

1. *Power.*—The principle of action, construction, method of working, also care and management of steam engines and boilers, gas, oil and petrol engines and agricultural tractors—Cost and working expenses in connection with the above—Estimation of the brake horse-power of engines—Power derived from water—Measurement of the quantity of water flowing in a stream—General arrangement of water-power plants—Water-wheels—Turbines—Pumps, principle of action and construction—Flow of water through pipes—Hydraulic ram—Windmills.

2. *Agricultural Implements and Machinery.*—The mode of action and the general principles involved in the construction and working of farm implements and machinery—Arrangement of machinery with respect to the power plant—Pulleys and belting—Shafting and bearings—Lubrication—Lifting appliances—Strength and care of chains—Concrete and its use in the construction of simple foundations for engines and machines.

3. *Implements of Cultivation.* — Ploughs — Cultivators — Grubbers—Harrows—Drills—Manure Distributors—Seeding and planting implements.

4. *Implements of Harvesting.*—Mowing and Reaping machines—Rakes—Tedders—Elevators—Potato raisers.

5. *Implements of Transit.*—Carts, waggons, rick lifters, tractors.

6. *Threshing and Food-preparing Machinery.* — Threshing machines, stationary and portable—Screen Winnowers—Hummelers, Chaff cutters—Pulpers—Cake breakers.

7. *Dairy Appliances.*—Milking machines—Cream separators—Churns and other butter-working appliances—Milk delivery cans—Cheese-making utensils—Vats and presses.

N.B.—*Candidates are expected to have had some experience with agricultural machinery and implements under actual working conditions, and to be capable of illustrating their answers, when necessary, by intelligible sketches or diagrams.*

IV.—LAND SURVEYING AND FARM BUILDINGS.

1. The use and adjustment of instruments employed in Surveying and Levelling other than the Theodolite.

2. Land surveying by chain—Plotting from field book, and determination of areas surveyed—The simpler "field problems."

3. Levelling and plotting from field book.

4. A knowledge of the various classes of maps published by the Ordnance Survey Department and their Scales.

5. *Roads and Fences.*—The construction and maintenance of farm roads, fences, and ditches.

6. *Land Drainage.*—Methods of draining; mole and pipe drains; cost of construction and maintenance.

7. *Buildings.*—Buildings required on different classes of farms—Economical arrangement of farm buildings—Materials—Construction—Ventilation—Drainage—Water supply—Dimensions of dairy, stables, cowsheds, yard, courts, and piggeries—Accommodation for power—Implement, machinery, and cart sheds—Hay and grain sheds—Shelter sheds—Storage of manure.

N.B.—*Each candidate should have with him at the Examination a pair of compasses, scales of equal parts, including scales of one chain to the inch, 4 feet to the inch, 8 feet to the inch, and the scale fitting the Ordnance map,* $\frac{1}{2500}$ *or 25·344 inches to the mile, a small protractor, a set square, and a straight-edge about 18 inches in length.*

V.—AGRICULTURAL CHEMISTRY.

1. *The Atmosphere.*—Its composition and relations to plant and animal life.

2. *Water.*—Rain water—Soil water and drainage—Drinking water—Sewage and irrigation.

3. *The Soil.*—Origin, formation, and classification of soils—Sampling—Analysis—Composition of soils—The chemical and physical properties of soils—The water and air of the soil—Biological changes in the soil—The soil in relation to plant growth—Fertility—Causes of infertility—Improvement of soils.

4. *Manures.*—Theories of manuring—Classification of manures—Origin, nature, and characteristics of manures—Manufacture of manures—Composition, analysis, adulteration, and valuation of manures—Farmyard manure and other natural manures—Green-manuring—Liming, marling, claying—Artificial manures, their origin and manufacture—Fertilisers and Feeding Stuffs Act—Sampling of manures.

5. *Poisons, Antiseptics, and Preservatives.*—General chemical composition and character of insecticides, fungicides, antiseptics, and preservatives used on the farm.

6. *Plants and Crops.*—Constituents of plants—Assimilation and nutrition of plants—Sources of the nitrogen and other constituents of plants—Germination—Action of enzymes—Composition and manurial requirements of farm crops—Food products derived from crops—Manuring experiments.

7. *Animals.*—Composition of animal body—Animal nutrition—Digestion—Assimilation, metabolism, respiration, and excretion.

8. *Foods and Feeding.*—Constituents of foods—Origin, nature, and composition of chief feeding-stuffs—Sampling, analysis, and adulteration of foods—Nutritive value and digestibility of food—Functions of chief

food constituents—Energy values—Vitamines—Relation of foods to the production of work, meat, milk, and manure—Manurial residues of foods.

9. *Dairy Chemistry.*—The composition of milk, cream, butter, cheese, &c.—Conditions which influence the composition of milk and milk products—Action of ferments and enzymes on milk and milk products—Milk-testing—Analysis and adulteration of dairy products.

N.B.—*Candidates are required to bring their Laboratory Notes to the Oral Examination in this subject.*

VI.—AGRICULTURAL BOTANY.

In addition to a *general knowledge* of the morphology, histology, and physiology of plants, candidates will be expected to possess a *detailed knowledge* of the following subjects:—

British grasses of agricultural importance: recognition of, at any stage of growth. Habitats of important species. Constitution of the grass flora of good meadows and pastures. Composition of seed mixtures for temporary and permanent leys on various soils. The effects of artificial manures on the flora of grass land.

The weeds of arable and grass land. Poisonous and parasitic weeds. Methods of distribution by seed and vegetatively: of eradication. Weeds as soil indicators. Recognition of the seeds of the common weeds, particularly those characteristically found in clover, grass, &c., seed.

The chief varieties of wheat, barley, oats, clovers, roots, and other farm crops: their suitability for various climatic and soil conditions. The identification of the more important types of cereals by means of their grain characters. Characteristics of good and bad samples of cereals.

Identification of materials used in feeding cakes and meals.

Plant-breeding. Principles of heredity in plants. Pure lines. Fluctuating variability. Selection.

Disease in plants. Diseases due to the effects of parasitic fungi. Resistance to disease: conditions affecting. Fungoid diseases scheduled from time to time by the Ministry of Agriculture and Fisheries.

Yeasts and fermentation.

The general outlines of bacteriology: nitrogen fixation, nitrification, and denitrification. Putrefaction and the bacteriology of milk, butter, and cheese.

VII.—AGRICULTURAL BOOK-KEEPING.

1. Advantages of book-keeping to the farmer. Difficulties and how they can be overcome. Objects of book-keeping.

2. General principles of book-keeping. Double-entry system. Description and use of various books. Ledger, journal, cash-book, petty cash-book, day-books, &c. Entering transactions; posting; trial balance; closing the accounts. Single-entry system.

3. Special ledger accounts: Interest, depreciation, rent and rates, improvements, private and household expenses, profit and loss, and capital; partnership accounts.

4. Bank business. Opening a bank account. Use of cheques. Deposits and overdrafts.

5. General office work; correspondence, order notes, invoices, rendering accounts, receipts, &c. Filing systems.

6. Farm valuations for book-keeping purposes. Dates for stocktaking and principles of valuation. The farm balance-sheet.

7. Systems of farm book-keeping. Conditions that determine the most suitable system. Advantages and drawbacks of each system.

8. Accounts for the owner-occupier. Treatment of rent. Incidence of rates and tithe in England and Scotland, and their treatment as between farm and estate accounts. Improvements and upkeep and the general principles relating to maintenance claims.

9. Cost accounting. General principles and methods. Advantages, objects, difficulties.

10. Interpretation of results from ordinary and from cost accounts. Precautions necessary. Use of accounts as a guide to efficient management.

11. Income Tax. How the farmer is assessed. Preparation of Income Tax return. Treatment of Income Tax in accounts.

VIII.—AGRICULTURAL ZOOLOGY.

1. The part played by common animals in helping or hindering agricultural operations, as illustrated by moles and voles, insectivorous and other birds, snails and slugs, useful and injurious insects, arachnids and myriapods, earthworms, &c.

2. *General Structure of Insects*, especially the external characters.

3. *Life-history of Insects.*—Economic importance of different stages. A knowledge of the life-history of the principal insect pests as affording a basis for appropriate treatment.

4. *Acarina* injurious to Food Crops and Live Stock.

5. *Parasitic Worms.*—Flukes, Tapeworms, and Threadworms.

6. *Preventive and Remedial Measures* in regard to insects, acarines, and worm parasites—*e.g.*, farm practice in relation to the discouragement of insect attack. Encouragement of insect-eating birds and mammals. Artificial remedies. Insecticides. Treatment for parasites.

N.B.—*Practical acquaintance with common animals, especially insects and worm parasites, will be expected. Where the candidate is not acquainted with the scientific name of an animal, the generally received English name will be accepted.*

Candidates are required to bring their Laboratory Notes to the Oral Examination in this subject.

IX.—VETERINARY SCIENCE AND HYGIENE.

1. Elementary anatomy and physiology of the horse, ox, sheep, and pig, and their relation to unsoundness and disease.

2. The general principles of breeding—including the physiology of reproduction, the laws of heredity, the periods of gestation, and the signs of pregnancy in the mare, cow, ewe, and sow.

3. Dentition as a means of determining the age of horses, cattle, sheep, and swine.

4. The management of farm stock in health and disease.

The following won the Diploma in 1928:—

Diploma with Honours.

1st. Charles Turner, West of Scotland Agricultural College, Glasgow.
2nd. Evelyn Hoyle Brant, South Eastern Agricultural College, Wye, Kent.
3rd. Louis Henry Manning, Harper Adams Agricultural College, Newport, Salop.
4th. William Edmund Gelling, University of Leeds.

Diploma.

Christopher Stevens Allen, Seale Hayne Agricultural College, Newton Abbot.
George Thomas Balfour, South Eastern Agricultural College.
Stanley Frank Barnes, University College of Wales, Aberystwyth.
Edgar Alfred Bartlett, South Eastern Agricultural College.
Charles Edward Bland, University of Reading.
Clifford Bosomworth, University of Leeds.
Victor Briggs, University of Leeds.
James Clark Brownlie, West of Scotland Agricultural College.
George Warwick Channon, University of Reading.
Ernest Martin Clark, East Anglian Institute of Agriculture, Chelmsford.
Duncan Cyril Clarke, Midland Agricultural and Dairy College, Sutton Bonington.
John Grant Cooper, University of Leeds.
John Crozier, Glasgow University and West of Scotland Agricultural College.
John Reginald Curry, Armstrong College, Newcastle-on-Tyne.
Robert Paton Davidson, Edinburgh University and East of Scotland College of Agriculture.
Edward Davies, University College of Wales, Aberystwyth.
Albert Ivor Gordon Day, University of Reading.
Ursula Esmonde Dowse, Harper Adams Agricultural College.
Harold Cecil Freeth, University of Reading.
Leslie Frederick Gregory, University College of Wales, Aberystwyth.
Gordon George Hayes, East Anglian Institute of Agriculture.
Johnston Boyd Henderson, West of Scotland Agricultural College.
William Alfred Johnson, Harper Adams Agricultural College.
Henry Fraser Naismith Johnston, West of Scotland Agricultural College.
John Phillips Jones, University College of Wales, Aberystwyth.
Keith Ben Kilburn, University of Leeds.
Geoffrey Le Mesurier Lavers, Seale Hayne Agricultural College.
Idris Giles Lewis, University College of Wales, Aberystwyth.
John Lockhart, West of Scotland Agricultural College.
James John MacGregor, Glasgow University and West of Scotland Agricultural College.
Neil M'Nab, West of Scotland Agricultural College.

Anthony John Marval, East Anglian Institute of Agriculture.
Horace Leslie Graham Milne, Harper Adams Agricultural College.
Arthur Bateman Moore, Midland Agricultural and Dairy College.
Henry Ian Moore, University of Leeds.
Winfield Moulds, University of Leeds.
John Frederick Oxenham, Seale Hayne Agricultural College.
W. R. Penman, Harper Adams Agricultural College.
Harry James William Powell, South Eastern Agricultural College.
William Richard Bryant Quick, Seale Hayne Agricultural College.
Thomas Robinson, University of Leeds.
Gilbert McMicking Roddan, Glasgow University and West of Scotland Agricultural College.
William T. Rowe, Seale Hayne Agricultural College.
Ralph Newman Sadler, East Anglian Institute of Agriculture.
Clifford Rundle Seldon, Seale Hayne Agricultural College.
Sidney Douglas Smith, University of Leeds.
Cecil Robert Hickling Sturgess, Midland Agricultural and Dairy College.
William Henry Sutton, Seale Hayne Agricultural College.
Noel Lea Tinley, South Eastern Agricultural College.
Leonard Cundell Trumper, University of Reading.
Bernard Henry Walker, East Anglian Institute of Agriculture.
Ian Pollock Watson, West of Scotland Agricultural College.
John McAdam Watson, West of Scotland Agricultural College.
George Wells, University of Reading.
Joseph Christopher Wheatley, Midland Agricultural and Dairy College.

Examination Papers of Past Years.

Copies of the Papers set at the Annual Examination for the National Diploma in the Science and Practice of Agriculture held in 1928 may be had upon application. Price 6d. per set.

VETERINARY DEPARTMENT

The Society established a Veterinary Department in 1823, but by an arrangement made with the Royal College of Veterinary Surgeons, the Society's examination ceased in 1881. Holders of the Society's Veterinary Certificate are entitled to become Members of the Royal College of Veterinary Surgeons on payment of certain fees, without being required to undergo any further examination. The number of Students who passed for the Society's Certificate is 1183.

The Society votes annually eleven silver medals for Class Competition to each of the two Veterinary Colleges in Scotland, the one in Edinburgh and the other in Glasgow.

FORESTRY DEPARTMENT.

The Society grants First and Second-Class Certificates in Forestry.

1. An Examination will be held each year about the month of March.

2. The next Examination will be held at 8 Eglinton Crescent, Edinburgh, in the month of March 1930, provided a sufficient number of candidates present themselves for examination.

Forms of application may be obtained from the Secretary, Highland and Agricultural Society of Scotland, 8 Eglinton Crescent, Edinburgh, and must be returned duly filled up on or before 19th February 1930.

3. Candidates must possess—1. A thorough acquaintance with the theory and practice of Forestry. 2. A general knowledge of the following branches of study, so far as these apply to Forestry: (*a*) The Elements of Botany and Forest Zoology; (*b*) The Elements of Meteorology and Geology; (*c*) Forest Engineering, including Land and Timber Measuring and Surveying; Mechanics and Construction, as applied to fencing, draining, bridging, road-making, and saw-mills; and Implements of Forestry; (*d*) Book-keeping and Accounts.

4. The Examinations are open to candidates of any age, may be both written and oral, and will include such practical tests as may from time to time be decided to apply.

5. The maximum number of marks for each subject is 100; Pass marks for First-Class Certificate—Forestry, 75; all other subjects, 60. Pass marks for Second-Class Certificate—Forestry, 60; all other subjects, 50.

6. A candidate who obtains Pass marks in certain subjects, but fails in others, may come up for these other subjects alone, it being understood that without the special permission of the Society no candidate will be eligible to enter for more than two subsequent Examinations.

7. A candidate who has obtained the Second-Class Certificate may enter again for the First-Class Certificate.

The list of students who obtained certificates prior to 1899 appears in the 'Transactions,' Fifth Series, vol. xi. (1899).

The following have since obtained First-Class Certificates:—

Eric Arthur Nobbs, Department of Agriculture, Cape Town,	1899
George Potts, Grey College, Bloemfontein, Orange River Colony,	1899
Duncan S. Rabagliati, 1 St Paul's Road, Bradford,	1901
Frank Scott, Dumfries House Mains, Cumnock,	1903
William T. Stockley, Rose Villa, Garswood, near Wigan,	1906
A. Frank Wilson, C.D.A. (Edin.), Reedieleys, Auchtermuchty,	1907
George Fisher, Farm Brook, Pilling, Garstang, Lancs.,	1909

John Patten, jun., Hulne Park, Alnwick,	1909
Alexander Mitchell, Dalmeny Park, Edinburgh,	1909
John D. Davidson, Brimstage, Birkenhead,	1911
Donald Doull, M.A., A.R.C.Sc., High School, Kelso,	1911
James W. Mackay, Jervaulx Abbey, Middleham, Yorks.,	1915
Harry Watson, Darnaway, Forres,	1915
Reginald Watt Hunter, 94 St George's Terrace, Newcastle-on-Tyne,	1919
John M'Ewen, Monaughty Forest, by Elgin	1922
Alfred Pope, Swinsty Hall, Fewston, Harrogate	1922
William Lyne Watt, Department of Agriculture, P.O. Box 323, Nairobi, Kenya Colony, Africa	1926

The following have since obtained Second-Class Certificates :—

William Bruce, B.Sc., East of Scotland College of Agriculture, Edinburgh,	1901
Rajappier Swaminathan, 56 Jesus Lane, Cambridge,	1901
Thomas Usher, Courthill, Hawick,	1901
Allan Carruth, Lawmarnock, Kilbarchan,	1905
Alex. M. Lumsden, Newburn Schoolhouse, Upper Largo,	1905
Robert M. Wilson, Laws Cottage, Duns,	1905
Thomas Campbell, Greystoke, Penrith,	1906
Donald Ferguson, Quarry Lane, Lennoxtown,	1906
Charles Penrhyn Ackers, Huntly Manor, Gloucester,	1908
Robert Howie, Beechwood, Arbroath,	1908
John Trotter, D.Sc., 22 West Savile Terrace, Edinburgh,	1908
James A. S. Watson, Downieken, Dundee,	1908
Norman H. Pearson, 52 Percy Park, Tynemouth,	1909
Lionel F. Stobart, Royal Agricultural College, Cirencester,	1911
Alexander George Norrie, Cairnhill, by Turriff,	1913
William Watt, Darnaway, Forres,	1913
William P. Greenfield, 6 Littlefield Lane, Grimsby,	1915

SYLLABUS OF EXAMINATION.

I.—SCIENCE OF FORESTRY AND PRACTICAL MANAGEMENT OF WOODS.

I. *Principles of Scientific Forestry.*—1. The tree : conditions essential for its nutrition and growth. 2. The soil : its physicial structure and properties. 3. The different forms of woodland crops. 4. Pure woods and mixed woods. 5. Even-aged and uneven-aged woods. 6. Sylvicultural characteristics of the principal trees, broad-leaved and coniferous, including recently introduced species of sylvicultural value.

II. *Forest Organisation.* — 7. General ideas regarding the necessity for a national forest policy. 8. Conditions necessary for the formulation of a regulated system of forest management. 9. Working plans, their compilation, construction, and use.

III. *Practical Management of Forests.*—10. Assessment of the suitability of areas for afforestation purposes. 11. Preparation of areas for planting. 12. Treatment of heather, bracken, scrub. 13. Draining and enclosing. 14. Choice of species for various situations. 15. Seed—harvesting, extraction, storage. 16. Nurseries, temporary and permanent—choice of site, internal lay-out, management, including lifting, packing, and transport of plants. 17. Planting and sowing in the forest—methods suited to various conditions. 18. Natural regeneration by seed. 19. Regeneration by cuttings, layers, stool shoots. 20. Formation of mixed woods, even-aged, uneven-aged, temporary and permanent, use of nurse trees, kinds of nurse trees suitable under different conditions. 21. Tending of young woods. 22. Pruning. 23. Thinning.

IV. *Forest Protection against*—24. Fires, wind, snow, deer, rabbits, squirrels, birds, insects, and fungi.

V. *Timber.*—25. Its technical properties. 26. Its defects. 27. Recognition of different kinds of timber. 28. Processes for increasing its durability.

VI. *Utilisation of Produce.*—29. Uses of wood and other produce. 30. Felling. 31. Conversion. 32. Seasoning. 33. Transport. 34. Measurement, classification, valuation, and marketing of standing timber.

II.—FOREST BOTANY AND FOREST ZOOLOGY.

(*a*) Forest Botany.

The fundamental facts of morphology, physiology, and classification of plants. The structure and function of the plant-cell and the plant-tissues. Their primary distribution. The secondary changes they exhibit in consequence of perennation.

The structure and function of the root and shoot in flowering-plants. Buds, their forms and uses. The flower. The fruit. The seed.

The structure and function of vegetative and reproductive organs of fungi.

Relationship of plants to air, soil, and water. Effect of light, heat, and mechanical agencies upon plants. Nutrition. The nature and elements of the food of plants. Sources of plant-food. The absorption, elaboration, transference, and storage of food. Respiration and transpiration. Parasites and saprophytes. Symbiosis.

Growth of plants in length and thickness. Correlation of growth, pruning. Germination of seeds. Formation of wood and bark. Healing of wounds.

Diseases of plants due to faulty nutrition and unfavourable circumstances of growth. Diseases due to attacks of fungi.

Natural reproduction and propagation by seeds and by buds. Fertilisation of flowers. Hybridisation. Artificial propagation by budding, grafting, layering, and cutting.

The characters of the large groups and classes of the vegetable kingdom. The characters of the families of plants which include the chief timber trees. The botanical characteristics of the principal British forest-trees (including the structural features of their wood). The weeds of the forest and their significance.

(b) Forest Zoology.

General classification of animals. The differences between Vertebrates and Invertebrates.

Earthworms and their relation to soil formation; life-history and habits.

Snails and Slugs: General characters and habits.

Insects: Structure and metamorphosis. General classification; the orders of insects important in forestry. Habits and life-histories of important insects in the following groups: leaf-eaters, bark and stem borers, root feeders, sucking insects, predaceous and parasitic insects.

Insect Control: Natural control; preventive and remedial measures.

Spiders and Mites: General characters and habits.

Birds: Recognition and relation to forestry of crows, jay, woodpecker, hawks, owls and tits, also game birds.

Mammals: General characters of the main groups represented by the deer, rabbit, hedgehog, and weasel; the relation of these to forestry.

III.—METEOROLOGY AND GEOLOGY.

Meteorology.

The atmosphere, its composition and physical properties. Measurement of pressure and temperature. The barometer. Rain, hail, snow, fog, cloud, dew, the dew-point, hoar frost. Gases injurious to vegetation.

Geology.

The crust of the earth, its structure and denudation. Recognition of igneous, sedimentary, and metamorphic rocks. Weathering of rocks and soils; formation of alluvium, gravels, and glacial deposits. The composition, mode of weathering, and distribution of the various geological formations in the British Isles. The relationship of strata to the configuration of a country and to the overlying soils, rainfall, and drainage.

IV.—FOREST ENGINEERING, including LAND AND TIMBER MEASURING AND SURVEYING; MECHANICS AND CONSTRUCTION as applied to Fencing, Bridging, Road-making, and Saw-mills.

The use of the level and measuring chain. Chain surveying. Plotting. Levelling and contouring. Measuring and mapping surface areas. Knowledge of the 25″ and 6″ Ordnance Survey maps and their markings. Use of the planimeter. Plane table surveying. The measurement of solid bodies—as timber, stacked bark, fagots, &c., earthwork.

Use and characteristics of materials—as bricks, stone, lime, mortar, cement, concrete, reinforced concrete, iron, steel.

Simple building construction. Roofs of various types. The construction of simple bridges over streams and gullies. Culverts, &c.

The setting out and formation of roads for temporary and permanent use.

Drainage. Gauging of streams. Water-power. Construction of dams, weirs, water channels, &c. The general arrangement and working of estate saw-mills. Timber slides. Forest tramways. Working and management of steam engines and boilers, oil and petrol engines.

The different modes of fencing and enclosing plantations; their relative advantages, durability, cost of construction, and repairs.

Detailed drawings from figured sketches.

V.—ARITHMETIC—BOOK-KEEPING.

1. Arithmetic—including Practice, Proportion, and Decimal Fractions.
2. Book-keeping—including the description of books to be kept, the solution of practical questions in Book-keeping and the preparation of Accounts.

EXAMINATION PAPERS, 1922.

PRACTICAL FORESTRY.

1. In a practically treeless hilly area, the planting of which you are entrusted with, explain the principles which would guide you in arriving at the limit of altitude for profitable tree-growth, considering generally the effect of latitude, aspect, wind, and soil (plantable soil being classed good, fair, and poor). State briefly the advantages of such a classification of soils.

2. Explain the method you would adopt in laying down the boundary line of an extensive plantation, assuming that the area to be planted is of a hilly and exposed nature.

State the type of fence you would recommend for the foregoing area for preventing sheep and ground-game from entering the plantation; and give a specification and an approximate cost per yard of its erection.

3. Compare the respective advantages and disadvantages of Spring and Autumn planting, and indicate under what conditions either season may be preferred.

What are, in your opinion, the most favourable spacing distances at which to plant trees? Choose any four species, and state the planting distances you would select for each, and state your reasons for the spacings you indicate.

4. Describe the kinds of soil and climatic conditions most favourable for the successful cultivation of the following: Oak, Ash, Larch, Douglas Fir, and Norway Spruce.

5. An estate with 2000 acres of timber is to be sold, and you are invited by the vendor to make a valuation of the timber. The timber is composed of 500 acres of mature wood of Oak, Ash, and Larch, 100 years of age; 500 acres of pure Scots Pine, 80 years of age; and 500 acres of pure Scots Pine from 30 to 40 years of age. There are also 500 acres of young plantations under 20 years of age. State how you would proceed to ascertain volume and value of the first three classes, and on what principle you would value the younger plantations. Give prices per cubic foot for the older timber.

6. At what stage in the life of a coniferous plantation should thinning operations be begun? and state the objects and benefits of thinning.

(*Three hours allowed.*)

FOREST BOTANY AND FOREST ZOOLOGY.

(*A*) FOREST BOTANY.

(Four *questions only to be attempted.*)

1. Describe the buds, flowers, and fruit of Elm, Alder, and Lime.

2. What is the general microscopic structure of the foliage leaf of such a tree as the Beech or Oak? In what essential ways does the structure differ from that in the leaf of a Pine? Suggest reasons for the differences.

3. Write a life-history of the Fungus which causes "Dry-Rot. Suggest preventive measures.

4. Write a life-history of Taxus baccata.

5. Name and give characters for recognition of any three forest weeds known to you. State the harm each does.

(*B*) FOREST ZOOLOGY.

(Two *questions only to be attempted.*)

1. Describe by means of diagrams the nature of the brood-galleries of the Pine Beetle (Myelophilus piniperda), the Large Ash-Bark Beetle (Hylesinus crenatus), the Two-Toothed Pine Beetle (Pityogenes or Tomicus bidentatus).

2. Describe a Lepidopterous insect harmful to Larch or Pine under the headings:—

(*a*) how recognised as adult,
(*b*) how recognised as larva,
(*c*) the nature of the damage,
(*d*) treatment.

3. Name and distinguish four kinds of gall due to insects, and write an account of one of them, from origin to ripe condition.

(*Two hours and a half allowed.*)

PHYSICS, CHEMISTRY, AND METEOROLOGY.

1. State what is meant by the terms combustion, oxidation, and reduction, distinguishing between the last two. Under which of these heads would you classify the following chemical changes: phosphorus, copper, mercuric oxide, magnesium, heated in air?

2. What type of compound is produced when an element combines with oxygen? Into what groups may the elements be divided according to the properties of these compounds? State the general properties, distinguishing the elements of these groups.

3. Name the chief sources of *any three* of the following metals, and describe the extraction of the metal in *any one* case: sodium, calcium, iron, aluminium, lead, mercury.

4. Define the boiling-point of a liquid. If the boiling-point of a liquid is observed simultaneously at the foot and on the top of a mountain, state and explain any difference which would be noted.

5. Explain the formation of cloud and rain. What is understood by the "dew-point," and what is the purpose of determining it?

(*An hour and a half allowed.*)

FOREST ENGINEERING.

1. From the following level-book notes, with a datum line 25 feet below the ground-level at distance O :

(*a*) Calculate and check the reduced levels.

(*b*) Plot the section to a horizontal scale of 100 feet to an inch, and a vertical scale of 10 feet to an inch.

(*c*) Indicate the direction of bottom line of drainage pipes, and find the slope of this line.

Rise.	B. S.	I. S.	F. S.	Fall.	Reduced level.	Distance in feet.	Remarks.
	14·54				25·00	—	B. M.
		12·63				0	⊙ A, bottom of drain-pipe is to be 2·05 feet below surface at ⊙ A.
		8·51				90	
		10·24				160	
	7·65		14·28			240	
		4·10				350	
		2·89				430	
		8·51				540	
		11·94				620	
			15·19			700	⊙ B, level of water of pond. Bottom of drain-pipe to be 1 foot above water-level.

2. Draw a rough sketch of a field from the following notes, and find its area in acres, &c.

	Links.	
	⊙ B	
	854	
210	721	
0	600	
	415	182
124	280	
	134	110
	⊙ A	

3. Describe, with the aid of a diagram, how you would proceed to carry out the survey of a thick wood, where all the work must be done from the outside, and only a chain and poles are available.

4. A circular plantation is to be formed containing four acres. How many yards of fencing would be required to enclose it?

5. A ditch is to be 3 feet deep, 4½ feet wide at the top, and 1½ feet wide at the bottom ; it is 120 rods in length, and the cost of excavating the soil is estimated at 6d. per cubic yard. What will be the total cost of the work?

6. How would you obtain the width of a river which is too broad for direct measurement? No instrument, other than a chain, is to be used.

(*Two hours allowed.*)

ARITHMETIC AND BOOK-KEEPING.

I. Arithmetic.

1. Find the simple interest on £7665 for 35 days at 5 per cent.

2. What is the value of a piece of timber 5 feet 3 inches long, 2 feet 4 inches wide, and 1 foot 2 inches thick @ 10s. 6d. per cubic foot?

3. Find by practice the value of 3 cwt., 3 quarters, and 14 lbs. @ 8s. 4d. per ton.

4. A small wood, square in shape, has an area of 5625 square yards. It is to be fenced, and the fence is to be erected at a distance of 2 yards from the wood. How many yards of fencing are required?

II. Book-keeping.

Woodlands Estate has been recently purchased. A separate set of books is to be kept for each branch of the estate management by its supervisor, in which the details of all the transactions affecting the branch are to be recorded. At the end of the period these will be incorporated in the estate office books. You are in charge of one of the branches of the estate work.

1. State briefly—
    (1) What books you consider necessary properly to record your transactions.
    (2) What classes of accounts you expect it will be necessary to open in the ledger.
    (3) How at any given date you would satisfy yourself of the accuracy of your book-keeping.
    (4) How you would close your books at the end of the year.

Note.—The transactions you have to record will be confined to purchases and sales, cash receipts and payments, including all expenses incidental to your department, and you will control a bank account.

2. Make the entries for the following transaction in the cash-book and the ledger.

1922.					
Jan.	1.	Received from estate office	£150	0	0
"	2.	Paid into bank	120	0	0
"	2.	Ordered on credit from G. Toole, implements valued at	100	0	0
"	2.	Paid for books and stationery in cash . .	2	0	0
"	3.	Sold to S. Birch on credit 500 Scots pine @ 15s. each			
"	3.	Sold to D. Dick, and received payment, deadwood valued at	10	0	0
"	3.	Bought from F. Timber, young trees on credit .	200	0	0
"	4.	Paid hire of horses used in haulage . . .	5	0	0
"	6.	Received from S. Birch to account, and paid into bank	250	0	0
"	6.	Paid G. Toole in full by cheque, less 5 per cent discount	95	0	0
"	7.	Paid wages for week	8	0	0

3. How would you propose to keep trace of all implements purchased or acquired?

(*One hour and a half allowed.*)

DAIRY DEPARTMENT

EXAMINATION IN THE SCIENCE AND PRACTICE OF DAIRYING

This Examination, instituted in 1897, is conducted by the National Dairy Examination Board, appointed jointly by the Royal Agricultural Society of England, the Highland and Agricultural Society of Scotland, and the British Dairy Farmers' Association.

REGULATIONS.

1. The Societies may hold annually in England and in Scotland, under the management of the National Dairy Examination Board appointed by them, one or more examinations for the National Diploma in the Science and Practice of Dairying; the Diploma to be distinguished shortly by the letters 'N.D.D.'

2. The Examinations will be held on dates and at places from time to time appointed and duly announced.

3. A Non-returnable Fee of *Three Guineas* will be required from each candidate.

4. Forms of Entry for the Examination in England may be obtained from 'The Secretary, Royal Agricultural Society of England, 16 Bedford Square, London, W.C.1,' and must be returned to him duly filled up, with the entry fee of £3, 3s., on or before Saturday, July 20, 1929.

5. Forms of Entry for the Examination in Scotland may be obtained from 'The Secretary, Highland and Agricultural Society of Scotland, 3 George IV. Bridge, Edinburgh,' and must be returned to him duly filled up, with the entry fee of £3, 3s., on or before Saturday, August 3, 1929.

6. Any candidate may enter for the Examination either in England or Scotland, but not in both, and a candidate who has once taken part in an Examination in England cannot enter for an Examination in Scotland, or *vice versa.*

7. As a preliminary to the acceptance of an application for permission to enter for the Examination, a candidate must produce :—

(1) A certificate testifying that he or she has attended a Diploma Course in the subjects of the Examination covering *two academic years* at an approved Dairy Training Institution and has satisfied the authorities of the Institution of his or her fitness for admission to the Examination. This period shall include six session months' instruction (consisting of not more than two periods) in practical dairy work.

(2) Evidence that he or she has spent at least six months on an approved Dairy farm and taken part in the work. This period must not run concurrently with the six months' practical training referred to in subsection 1.

(An 'approved Dairy Farm' is one on which not fewer than 15 *cows are kept in daily milking.)*

8. A candidate who has already taken a Degree in Agriculture of a British University or a Diploma in Agriculture recognised by the National Dairy Examination Board, will be allowed to enter for the National Diploma in Dairying Examination after one year's training at a recognised institution, providing that such course includes at least six months' training in practical dairy work, and that he or she has worked for at least six months on an approved Dairy Farm.

9. In the Examination a candidate will be required to satisfy the Examiners by means of written papers, practical work, and *viva voce,* that he or she has :—

(1) A general knowledge of the Management of a Dairy Farm, including the rearing and feeding of Dairy Stock, the candidate being required to satisfy the Examiners that he or she has had a thorough training and practical experience in all the details of Dairy work as pursued on a farm.

(2) A thorough acquaintance, both practical and scientific, with everything connected with the management of a Dairy, and the manufacture of Butter and Cheese.

(3) A general knowledge of Dairy Factory Management, Dairy Hygiene, Dairy Engineering and Dairy Book-keeping.

(4) Practical skill in Dairying, to be tested by the making of Butter and Cheese.

NOTE.—A candidate must be prepared to make any one of the following varieties of Hard Pressed Cheese, the Examiner in Cheesemaking having the option of saying during the Examination what variety a candidate shall make :—

AT THE ENGLISH CENTRE : Cheddar, Cheshire or Derby.

AT THE SCOTTISH CENTRE : Cheddar, Dunlop or Cheshire.

10. The maximum marks obtainable, and the marks required for a pass in each subject are as follows:—

	Max.	Pass.
WRITTEN EXAMINATION—		
Dairy Farming	150	90
Dairy Hygiene	100	60
Dairying—		
(*a*) Principles of Dairying	150	90
(*b*) Dairy Factory Management and Dairy Engineering	100	50
Chemistry	100	60
(*a*) General Chemistry and Physics.		
(*b*) Dairy Chemistry.		
Dairy Bacteriology	100	60
Dairy Book-keeping	100	50
PRACTICAL EXAMINATION—		
Hard-pressed Cheese-making	200	150
Blue-veined Cheese-making	100	75
Soft Cheese-making	100	75
Butter-making	200	150
	1400	910

Honours will be awarded to candidates obtaining an aggregate of 80 per cent (1120) of the maximum marks (1400) in the Examination, provided that they also obtain at least 80 per cent (400) of the maximum marks (500) in the Dairy Farming, Hygiene, and Dairying papers.

11. The Board reserve the right to postpone, to abandon, or in any way or at any time to modify an Examination, and also to decline at any stage to admit any particular candidate to the Examination.

DATES OF EXAMINATIONS.

ENGLAND.—THURSDAY, September 5, and following days, at the University and British Daily Institute, Reading. Last date for receiving applications, SATURDAY, July 20.

SCOTLAND.—At Dairy School, Kilmarnock. WRITTEN—THURSDAY, FRIDAY and SATURDAY, September 5, 6, and 7. ORAL AND PRACTICAL—MONDAY, September 16, and following days. Last date for receiving applications, SATURDAY, August 3.

SYLLABUS OF SUBJECTS OF EXAMINATION

1.—DAIRY FARMING AND DAIRY HYGIENE.

(*a*) DAIRY FARMING.

SOILS AND CROPS.—Types of Soils suitable for dairying. Rotations and systems of cropping. Cultivation, manuring and management of grain, root and forage crops used in dairying. Silage. Temporary and permanent pastures, haymaking.

PLANT PHYSIOLOGY.—Roots, shoots, flowers, fruit and seeds of agricultural plants.

DAIRY CATTLE.—Characteristics of different breeds. Relation of conformation and appearance to Milk Yield. Choice of dairy cattle in relation to climate and soil. The milk yields of the more important breeds, and suitability for the milk trade, cream, butter and cheese production.

The management of a Dairy Herd. Cattle breeding and grading up of dairy stock. Calf rearing and management of young stock.

Milk Recording. Systems, and utilisation of results. Details of official schemes.

FOODS AND FEEDING.—Summer and winter feeding of dairy cattle and young stock. Fodder crops and green forage. Roots. Ensilage. Concentrated foods, meals, cakes. Preparation of food. The effect of food on milk and its products.

PIG KEEPING.—Characteristics of the more important breeds. The breeding, rearing and fattening of pigs. Production of pork and bacon.

FARM MANAGEMENT.—Systems of dairy farming. The selection, stocking and equipment of typical farms. Organisation of the farm and disposal of produce.

DAIRY ECONOMICS.—The Dairy Industry of Great Britain and its relationship to Agriculture. The relative importance of the various products. The retail milk trade. Markets, Dairy organisation and co-operation. Modern developments in the Dairy industry. Sources of imported Dairy Produce.

(*b*) DAIRY HYGIENE.

ANIMAL PHYSIOLOGY.—General functions of the organs of the animal body. Breeding. Parturition. The structure of the udder and the process of milk secretion. Changes which food undergoes during digestion.

VETERINARY.—The more important diseases of dairy cattle and their treatment. The transmission and eradication of disease.

MILK HYGIENE.—Sanitary conditions. Suitability of water supply. Methods of milking and handling of milk. Regulations affecting milk production. Milk in relation to Public Health.

FARM BUILDINGS.—Situation, chief dimensions and construction of cow houses and diary buildings. Housing for young stock and pigs. Air space and ventilation, drainage and water supply.

II.—DAIRYING.

(a) PRINCIPLES OF DAIRYING.

MILK.—Milking by hand and machinery. Importance of cleanliness. Cooling of milk. Prevention of contamination. Pasteurisation. Sterilisation. Keeping of milk. Milk testing and sampling. Use of Gerber and Babcock Testers. Interpretation of results. Legal standards. Legislation affecting milk production.

CREAM.—Separators and their management. Different systems of cream raising and ripening of cream. Changes during ripening. Natural and artificial ripening, and preparation and uses of starters. Preparation of cream for sale. Uses of preservatives. Clotted cream.

BUTTER.—Churns and butter-making appliances. Preparation of cream for churning. Washing and working butter. Butter milk. Packing and transmission of butter. Selection and keeping of butter. Salting. Use of preservatives. Characteristics of good butter and method of judging. Circumstances affecting the flavour, texture, colour and keeping qualities of butter. Potting butter for keeping. Causes of inferior butter.

CHEESE.—Principles of manufacture. Appliances for cheese-making. The making of the principal varieties of British, Colonial and Continental cheese from cream, whole milk and skim milk. Acidity of milk. Common tests for acidity. Uses of rennet and its substitutes. Whey. Ripening and storage of cheese. Packing and sale of cheese. Making of cream and other soft cheese. Defects in cheese and their causes. Judging cheese.

(b) DAIRY FACTORY MANAGEMENT AND DAIRY ENGINEERING.

FACTORY PRACTICE.—Milk depots and handling of factory milk. Systems of cooling and refrigeration. Pasteurisation. Factory butter and cheese-making. Milk Powders. Condensed milk. Frozen milk. Ice cream. Dried casein. Fermented milk. Lactose and whey-butter. Margarine manufacture. Equipment of milk depots, butter, cheese and dairy factories.

FACTORY MANAGEMENT.—Factory routine. Organisation of labour. Handling of milk on arrival at the factory. Methods of dealing with the milk. Milk contracts. Dairy factory legislation.

DAIRY APPLIANCES AND MACHINERY.—Appliances used in the production and handling of milk, butter and cheese. Care and management of engines and boilers, dairy factory machinery, refrigerating machinery.

BUILDINGS.—Situation, construction and drainage of creameries, milk depots and dairy factories.

III.—CHEMISTRY.

(*a*) GENERAL CHEMISTRY AND PHYSICS.

CHEMISTRY.—Elements, compounds and mixtures. Chemical symbols, formulæ and equations. Acids, bases, salts: their distinctive properties. Acidity and alkalinity; their quantative estimation. The Atmosphere: its constituents and impurities; influence on dairying operations. Water: its constitution; pure and natural waters; impurities in water and whence derived. Importance of a good water supply in dairying. General knowledge of elementary chemistry. Oxygen; hydrogen; carbon; nitrogen; phosphorus and sulphur; common metals; common acids; compounds of potassium, sodium, ammonium, calcium.

Elementary organic chemistry; sugar, milk sugar, starch, alcohol, acetic acid, formaldehyde, butyric acid, lactic acid, glycerine, saponification of fats; albumen, casein, pepsin.

PHYSICS.—The different forms of matter; solid, liquid, gaseous. Specific gravity and instruments for determining it. Temperature and methods of measuring it. Expansion; thermometric scales. Influence of temperature in dairy operations. Atmospheric pressure and its measurement. Hygrometry. Heat and its measurement; specific heat. Latent heat. Conduction. Convection. Radiation. Solution. Filtration. Distillation. Simple machines, such as levers, pulleys and light weighing machines.

(*b*) DAIRY CHEMISTRY.

CHEMISTRY OF MILK.—The nature, composition, properties and chemical constituents of milk. Microscopical appearances presented by milk. The influence of feeding. The changes which occur in the keeping of milk, and how produced. The natural and artificial souring of milk. Rennet, its nature and uses.

Milk Products.—Physical and chemical changes involved in the making and keeping of butter and in the manufacture and ripening of cheese. Separated milk. Condensed milk. Fermented milk. Synthetic milk. The use of preservatives.

Dairy Analysis.—Analytical methods, their theory and practice. A general knowledge of the methods employed in the chemical analysis of milk, butter and cheese. Adulteration of milk, cream, butter and cheese, the ways in which adulteration is practised, the changes in composition thereby produced, and a general knowledge of the methods employed in detecting the same.

Chemistry of Feeding.—The principal constituents of food materials and the functions they severally fulfil. The influence of food constituents on milk production. Assimilation and digestion. The manurial value of foods. Milk and milk products as foods.

IV.—DAIRY BACTERIOLOGY.

General Bacteriology.—Bacteria; their form, classification, growth and reproduction. The microscope and its use. Staining and microscopic examination of bacteria. Methods of isolation and cultivation. Preparation of culture media. Fermentations and chemical changes produced by bacteria. Enzymes and their action. Effects of heat, cold, sterilisation, pasteurisation, disinfectants and preservatives on bacteria and enzymes. Bacteriological examination of water supplies.

Bacteriology of Milk.—The changes produced by bacteria in milk. Useful forms and their functions. Harmful forms and their effects. Coagulation, discolouration, taints, &c. Bacteriological and other standards in relation to the cleanliness of milk.

Milk Products.—The bacteria concerned in the ripening of cream and butter making. 'Starters,' their preparation and management. The ripening of hard, soft, and blue-veined cheese. Bacteria injurious to milk products, including condensed and dried milk.

Dairy Mycology.—Moulds and yeasts in dairy practice. Their form, classification, growth and relation to dairy products.

V.—DAIRY BOOK-KEEPING.

General Principles.—Principles of double-entry book-keeping. Use of diary, journal, cash-book and ledger. Posting to ledger. Preparation of profit and loss account and balance-sheet. System of valuation.

Farm Book-keeping.—Application of the principles of book-keeping to dairy farming and to the sale of milk in bulk or by retail.

Factory Accounts.—Methods of book-keeping as applied to milk depots and dairy factories.

Business Management.—General office work. Banking and use of cheques.

VI.—PRACTICAL SKILL IN DAIRY WORK.

Candidates must be prepared—(1) to produce before the Examination a satisfactory certificate of proficiency in the milking of cows, signed by a practical Dairy Farmer, and to satisfy the Examiners by a practical test, if so required; (2) to churn and make into Butter a measured quantity of Cream; and (3) to make one Cheese of each of the following varieties: (1) Hard-pressed, of not less than 30 lb. (see Note to Reg. 9 (4)); (2) Veined or blue-moulded, of not less than 10 lb.; and (3) also to make one or other of the following Soft Cheeses: Cambridge, Camembert, Coulommier, or Pont l'Evêque.

The following obtained the Diploma in Scotland in 1928:—

Diploma with Honours.

Mary Macfarlane Stewart, St Helens, Forfar.

Diploma.

Anne Catherine Anderson, 49 Morningside Park, Edinburgh.
William Wighton Ballardie, 58 Fern Avenue, Jesmond, Newcastle-on-Tyne.
Mary Miller Campbell, 17 Nelson Street, Falkirk.
Abdul Karim Bawa Cazi, 11 George Square, Edinburgh.
Jeremiah Doherty, Kilegorive, Cappamore, Co. Limerick.
Caroline Elizabeth Gunson, 30 Randolph Road, Glasgow, W.1.
Andrew King Kirk, Fullerton, Canal Avenue, Johnstone, Renfrewshire.
Eliza Georgina Mackay, Trantlemore, Forsinard, Sutherland.
Isabella Catto Meikle, 10 Townhead Street, Old Cumnock, Ayrshire.
Esther Shearer Moffat, The Mount, Balfron, Stirlingshire.
William Richard Bryant Quick, Seale Hayne Agricultural College, Newton Abbot, Devon.
Clifford Rundle Seldon, Grampound, Cornwall.
Hesterina Simpson, Woodend, Ballygrant, Isle of Islay.

MARGARET LAW SMALL, 130 Roxburgh Circus, Cardonald, Glasgow, S.W.2.
JOHN RUSSELL STEWART, 29 Knowetop Street, Maryhill, Glasgow.
THOMAS R. STODART, Northflatt, Thankerton.
WILLIAM HENRY SUTTON, Treskinnick, Poundstock, Bude, Cornwall.
CHARLES TURNER, 9 Argyll Avenue, Stirling.
THOMAS WILLIAMSON, "Routon," Ennerdale, Frizington, Cumberland.
JEAN GOLDIE WILSON, 17 South Dean Road, Kilmarnock.

The following gained the Diploma in England in 1928 :—

Diploma with Honours.

ALICE P. HASSALL, The University and British Dairy Institute, Reading.

Diploma.

LILIAN ABBOTTS, The University and British Dairy Institute, Reading.
BETH CLARE BEAMOND, The University and British Dairy Institute, Reading.
NANCY COCKBURN BUTCHART, Lancashire County Council Dairy School, Hutton, Preston.
REGINALD WILLIAM CHAMPION, The University and British Dairy Institute, Reading.
WILLIAM ERNEST CYRIL CLOOK, The University and British Dairy Institute, Reading.
MARY CURZON, Midland Agricultural and Dairy College, Sutton Bonington.
ALBERT IVOR GORDON DAY, The University and British Dairy Institute, Reading.
MARJORIE FLEET, The University and British Dairy Institute, Reading.
HAROLD CECIL FREETH, The University and British Dairy Institute, Reading.
JOSEPH HETHERINGTON, The University and British Dairy Institute, Reading.
EDWIN HUMPHREY HINTON, East Anglian Institute of Agriculture, Chelmsford.
MARGARET LUTA HOPSON, The University and British Dairy Institute, Reading.
ELIZABETH EMILY JONES, University College of Wales, Aberystwyth.
EDITH MARY LLOYD, The University and British Dairy Institute, Reading.
PHYLLIS MARY PARROTT, East Anglian Institute of Agriculture, Chelmsford.
UNA AGATHA RIDGWAY, Studley College, Warwickshire.
GLADYS EUGENIE ROBERTS, The University and British Dairy Institute, Reading.

ALICE ROTHWELL, Lancashire County Council Dairy School, Hutton, Preston.
ELINOR SIMON, The University and British Dairy Institute, Reading.
NORAH PATRICIA SLATTERY, The University and British Dairy Institute, Reading.
ELSIE WATERS, The University and British Dairy Institute, Reading.
GEORGE WELLS, The University and British Dairy Institute, Reading.
MARY WILD, Midland Agricultural and Dairy College, Sutton Bonington.

EXAMINATION PAPERS OF PAST YEARS.

Copies of papers set at past Examinations in Dairying, so far as available, may be had on application. Price 6d. per set.

Stamps will not be accepted in payment for sets of Examination Papers.

CHEMICAL DEPARTMENT

Chemist to the Society—J. F. TOCHER, D.Sc., F.I.C., Crown Mansions, 41½ Union Street, Aberdeen.

The object of the Chemical Department is to promote the diffusion of a knowledge of Chemistry as applied to agriculture among the members of the Society, to carry out experiments for that purpose, to assist members who are engaged in making local experiments requiring the direction or services of a chemist, to direct members in regard to the use of manures and feeding-stuffs, to assist them to put the purchase of these substances under proper control, and in general to consider all matters coming under the Society's notice in connection with the Chemistry of Agriculture.

MEMBERS' PRIVILEGES IN RESPECT TO ANALYSES.

MANURES, FEEDING-STUFFS, SOILS, AND AGRICULTURAL PRODUCTS.

This scale of fees applies only to members whose subscriptions are not in arrears.

The fees for analyses made for members of the Society shall, until further notice, be as follows:—

The determination of one ingredient in a single sample of a *manure* or of a *feeding-stuff*, ...	5s.
The determination of two or more ingredients in a single sample of a *manure* or of a *feeding-stuff*, ...	10s.

For example—

Linseed and other cakes, for oil or for albuminoids, .	5s.
Feeding-meals, ground cereals, for oil or for albuminoids, .	
Bone-meals, for nitrogen or for phosphate, . .	
Compound manures, for nitrogen or for soluble phosphates, or for insoluble phosphates or for potash, . .	
Superphosphate, for soluble phosphate or for insoluble phosphate, ...	
Thomas-phosphate powder, for citric soluble phosphate or for total phosphate, ...	
Linseed and other cakes, for oil and albuminoids, &c., .	10s.
Feeding-meals, ground cereals, for oil, albuminoids, &c., .	
Bone-meals, for nitrogen, phosphate, &c., . . .	
Compound manures, for nitrogen, soluble phosphates, insoluble phosphates, and potash, . . .	
Superphosphate, for soluble phosphate and insoluble phosphate, ...	
Thomas-phosphate powder, for citric soluble phosphate and total phosphate, ...	

Limestone, giving the percentage of lime,	£0	5	0
Limestone, complete analysis,	1	0	0
Lime, including ground lime, percentage of alkaline lime,	0	5	0
" " " complete analysis,	1	0	0
Analysis of soil, to determine fertility and recommendation of manurial treatment,	1	10	0
Complete analysis of soil,	2	10	0
Analysis of agricultural products—hay, grain, ensilage, roots, &c.,	1	0	0

Not more than four samples per annum will be analysed under the Society's scheme for any one member.

Note to Members sending Samples for Analysis.

The Directors are anxious to take any steps in their power to expose the vendors of inferior fertilisers and feeding-stuffs, and the members can give them assistance in this by supplying to the chemist, when sending samples for analyses, information as to the guarantee, if any, on which the goods were sold, and also as to the price charged.

These charges apply only to analyses made for agricultural purposes, and for the sole and private use of members of the Highland and Agricultural Society who are not engaged in the manufacture or sale of the substances analysed.

Valuations of manures, according to the Society's scale of units, will be supplied if requested.

DAIRY PRODUCE.

Milk, full analysis,	£0	10	0
" solids and fat,	0	5	0
" fat only,	0	2	6

(*Not more than six samples of milk per annum will be analysed under the Society's scheme for any one member.*)

Butter, full analysis,	0	10	0
" partial analysis (water and fat),	0	5	0
Cheese,	0	10	0

WATER.

Analysis of water[1] to determine purity and fitness for domestic use (the Committee reserve power to refuse from one member more than two samples annually under the Society's scheme).....at the reduced fee of	1	0	0

MISCELLANEOUS.

Search for poisons in food or viscera,	2	0	0

(*Veterinary surgeons are not entitled to have searches made for poisons in food or viscera under the Society's scheme for clients who are not members of the Society.*)

Sulphate of copper, percentage of copper and purity,	0	5	0
" " complete analysis,	0	10	0
Arsenic, carbolic acid and tar acids, and other poisons used in making sheep dips, insecticides, &c.,	5s. to £1		

Samples should be sent (carriage paid) to Dr J. F. Tocher, Crown Mansions, 41½ Union Street, Aberdeen.

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[1] Cases containing bottles for water samples and instructions for sampling are sent from the laboratory on application.

INSTRUCTIONS FOR SELECTING SAMPLES FOR ANALYSIS.

MANURES.

Any method of sampling mutually agreed upon between buyer and seller may be adopted, but the following method is recommended as a very complete and satisfactory one: Four or more bags should be selected for sampling. Each bag is to be emptied out separately on a clean floor, worked through with the spade, and one spadeful taken out and set aside. The four or more spadefuls thus set aside are to be mixed together until a uniform mixture is obtained. Of this mixture one spadeful is to be taken, spread on paper, and still more thoroughly mixed, any lumps which it may contain being broken down with the hand. Of this mixture two samples of about half a pound each should be taken by the purchaser or his agent, in the presence of the seller or his agent or two witnesses (due notice having been given to the seller of the time and place of sampling), and these samples should be taken as quickly as possible, and put into bottles or tin cases to prevent loss of moisture, and having been labelled, should be sealed by the samplers—one or more samples to be retained by the purchaser, and one to be sent to the chemist for analysis.

FEEDING-STUFFS.

Samples of feeding-stuffs which are in the form of meal may be taken in a similar manner.

Samples of cake should be taken by selecting four or more cakes from the bulk. These should be nutted to a size not larger than walnuts. The nutted cake should then be thoroughly mixed and samples of not less than one pound each taken from it. The samples should be put into bottles or tins, sealed up, and labelled. One sample should be sent to the analyst, and one or more duplicates retained by the purchaser.

SOILS.

Dig a little trench about two feet deep, exposing the soil and subsoil. Cut from the side of this trench vertical scrapings of the soil down to the top of the subsoil. Catch these on a clean board, and collect in this manner two pounds of soil taken from the whole surface of the section. Similar scrapings of subsoil immediately below should be taken and preserved separately. Five or six similarly drawn samples at least should be taken from different parts of the field, and kept separate while being sent to the chemist, that he may examine them individually before mixing in the laboratory.

VEGETABLE PRODUCTS.

Turnips, &c., at least 50 bulbs carefully selected as of fair average growth.

Hay, straw, ensilage, &c., should be sampled from a thin section cut across the whole stack or silo, and carefully mixed; above 2 lb. weight is required for analysis.

Grain should be sampled like manures.

DAIRY PRODUCE.

Milk.—Samples of milk from individual cows should be taken direct from the milk-pail after complete milking. Average samples from a number of cows should be taken immediately after milking. Specify whether the sample is morning or evening milk, or a mixture of these. Samples to be tested for adulteration should not be drawn from the bottom or taken from the top of standing milk, but they should be ladled from the vessel after the milk has been thoroughly mixed. Samples of milk should be sent immediately to the analyst.

For most purposes a half-pint bottle of milk is a large enough sample.

Butter and Cheese.—About quarter-pound samples are required.

WATERS.

When the water is from a well, it should be pumped for some minutes before taking the sample.

If the well has been standing unused for a long time, it should be pumped for some hours, so that the water may be renewed as far as possible.

If the well has been newly dug or cleaned out, it should be pumped as dry as possible, daily, for a week before taking the sample.

Water from cisterns, tanks, ponds, &c., should be sampled by immersing the bottle entirely under the water, and holding it, neck upwards, some inches below the surface. *Water from the surface should not be allowed to enter the bottle.*

Spring or stream water should not be sampled in very wet weather, but when the water is in ordinary condition. Such waters should be sampled by immersing the bottle, if possible; but if not deep enough for that purpose, a perfectly clean cup should be used for transferring the water to the bottle.

When the bottle has been filled the stopper should be rinsed in the water before replacing it.

Interference with or disturbance of wells or springs, or the ground in their immediate vicinity, must be carefully avoided during sampling, and for at least twenty-four hours before it.

After a sample has been taken, it should be sent to the laboratory as speedily as possible.

A description of the source and circumstances of the water should accompany the sample, as the interpretation of the analytical results depends to some extent on a knowledge of such particulars.

N.B.—Stone jars and old wine bottles are unsuitable for conveying samples. Winchester quarts chemically cleaned should be obtained from the laboratory, Crown Mansions, 41½ Union Street, Aberdeen.

LOCAL ANALYTICAL ASSOCIATIONS.

With the view of encouraging, as well as regulating the conduct of, Local Analytical Associations, the Society, from 1881 to 1893, contributed from its funds towards their expenses a sum not exceeding £250 annually. In view of the passing of the Fertilisers and Feeding Stuffs Act, 1893, it was decided, at a meeting of the Directors on the 6th of December 1893, to discontinue that grant after the 1st of March 1894.

COMPOSITION AND CHARACTERISTICS OF MANURES AND FEEDING-STUFFS.

(*See* '*Transactions*,' *Fifth Series*, *vol. xi.*, 1899.)

FORMS OF GUARANTEE

GUARANTEE OF MANURE.

I guarantee that the manure called......................and sold by me to ....contains—

Soluble phosphoric acid = Phosphate of lime dissolved............per cent.
Insoluble phosphoric acid = Phosphate of lime undissolved.........per cent.
Potash salts . . = Potash (K_2O) . . . .per cent.
Total nitrogen . . . .per cent.

Signature of seller........................
Date..................19...

GUARANTEE OF FEEDING-STUFF.

I guarantee that the feeding-stuff called...............and sold by me to ....contains—

.... per cent albuminoids.
.... per cent oil.

Signature of seller........................
Date... ....19...

[PRICES OF FERTILISERS, &c.

PRICES OF FERTILISERS AND FEEDING-STUFFS FOR SEASON 1929.

(Cash Prices as fixed on 6th February. These prices are subject to variation from month to month or oftener.)

SUPERPHOSPHATES.

Item to be Valued.	Prices per Unit for the undernoted Percentages.		
Phosphoric Acid Dissolved . . . =Tricalcium Phosphate Dissolved	13·75 30	16·00 35	17·5 38
February Price	£2 12 6	£2 17 6	£3 2 6
Price per Unit	3/9¾	3/7	3/6¾

FERTILISERS.

(Other than Superphosphates.)

Name of Fertiliser.	Guarantee.	Price per Ton.			Price per Unit.		
		£	s.	d.		s.	d.
Sulphate of Ammonia (neutral) * . .	20·6 % Nitrogen	10	12	0		10	3½
Basic Slag †‡	13 % Total Phos. Acid =28·36 % Tric. Phos.	2	7	6		3	7¾
,, ,, †	14 % Total Phos. Acid =30·57 % Tric. Phos.	2	10	0		3	6¾
,, ,, †	18 % Total Phos. Acid =39·30 % Tric. Phos.	3	7	6		3	9
Potassic Slag	10 % Phos. Acid =21·84 % Tric. Phos. 4 % Potash	3	5	0	P Pot.	4 4	8¼ 6¼
Bone Meal (Home and Indian) .	4 % Nit., 20 % Phos. Acid =43·68 % Tric. Phos.	8	15	0	N P	19 4	5½ 10¼
Steamed Bone Flour . . .	0·8 % Nit., 27·5 % Phos. Acid =60·06 % Tric. Phos.	6	0	0	N P	15 3	7½ 11
Calcium Cyanamide (Nitrolim) ‖ . .	20·6 % Nitrogen	9	13	0	N	9	4½
Ground Mineral Phosphate § . .	26 % Phos. Acid =56·79 % Tric. Phos.	2	5	0		1	8¾
,, ,, ,, § . .	27·5 % Phos. Acid =60·06 % Tric. Phos.	2	8	9		1	9¼
,, ,, ,, § . .	34 % Phos. Acid =74·26 Tric. Phos.	3	7	6		1	11¾
Potassic Mineral Phosphate . .	5 % Pot., 18 % Phos. Acid =39·30 % Tric. Phos.	3	5	0	P Pot.	2 4	4¼ 6½
,, ,, ,, . .	10 % Pot., 18 % Phos. Acid =39·30 % Tric. Phos.	3	15	0	P Pot.	2 3	0 10½
Nitrate of Soda ¶	15·5 % Nitrogen	10	9	0		13	5¾
Nitro Chalk **	15·5 % ,,	9	19	0		12	10
Kainit	14 % Potash	3	2	6		4	5½
Potash Salts	30 % ,,	5	0	0		3	4
,, ...	20 % ,,	3	12	6		3	7½
Sulphate of Potash	48·5 % ,,	11	5	0		4	7¾
Muriate of Potash	50 % ,,	9	2	6		3	7¾

The prices for all fertilisers are cash prices for two-ton lots in bags at Leith or Glasgow unless otherwise stated.

* Carriage paid to any railway station in six-ton lots. Four-ton lots 1/- more.

† Prices at Leith and Glasgow (5/-, less Ex. ship).

‡ The fineness of Basic Slag is such that 80 % of the powder will pass through the standard sieve. ‖ Four-ton lots carriage paid.

§ 75 % passing through standard sieve (2/6 more for 85 % of powder passing through standard sieve). ¶ Six-ton lots delivered. ** Two-ton lots carriage paid.

N.B.—These units are based on the RETAIL CASH PRICES OF MANURES in bags at Leith. The figures for Glasgow in the case of Superphosphates are 2/6 per ton less. When these units are multiplied by the percentages in the analysis of a Manure, they will produce a value representing very nearly the cash price *per ton at which TWO TONS may be bought in fine sowable condition at Leith or Glasgow. Larger purchases may be made on more favourable terms.*

FEEDING-STUFFS.

Name of Feeding Stuff.	Price per Ton.			Name of Feeding Stuff.	Price per Ton.		
	£	s.	d.		£	s.	d.
Linseed Cake (Home) at Leith	13	5	0	Medium Bran (Glasgow)	8	17	6
,, ,, at Glasgow	13	7	6	Thirds or Parings (Glasgow)	9	5	0
Cotton Seed Cake (Bombay)	8	5	0	Dried Distillery Grains	9	10	0
Cotton Seed Cake (Egyptian) at				,, Brewers' Grains	8	12	6
Aberdeen	8	10	0	Feeding Treacle	7	5	0
Ground Nut Cake—Decorticated	12	10	0	Locust Beans (Kibbled)*	9	0	0
,, ,, Undecorticated	10	0	0	Maize (Round Plate)*	10	15	0
Palm Kernel Cake	11	5	0	,, (Flaked)*	12	10	0
Decorticated Cotton Seed Meal—				Beans (Imported China)	11	12	6
5% oil, 36% albuminoids	12	0	0	Bean Meal	12	0	0
7% oil, 42% albuminoids	12	5	0	Soya Bean Meal	13	2	6
Rice Bran Meal	8	5	0	,, Cake	12	7	6
Broad Bran (Leith)	9	5	0	Home Oats (Feeding)	9	0	0
,, ,, (Glasgow)	9	0	0	White Fish Meal (Aberdeen)	18	0	0
Medium Bran (Leith)	8	10	0	,, ,, (Leith & Glasgow)	18	15	0

* In Railway Sacks.

CLASSIFICATION OF MANURES.

BONE MEALS	Genuine Bone Meal contains about 20 per cent Phosphoric Acid equal to 43·7 per cent Tricalcium Phosphate, and from 2·75 per cent to 4 per cent Nitrogen. If phosphates are low, nitrogen will be high, and conversely.
STEAMED BONE FLOUR	Ground to flour, and containing 27·5 per cent Phosphoric Acid equal to about 60 per cent Phosphates and about ·8 per cent Nitrogen.
MIXTURES AND COMPOUND MANURES	To be valued according to the following units: Nitrogen, 11/-; Soluble Phosphoric Acid, 4/3; Insoluble Phosphoric Acid, 2/9; and Potash, 4/-. The value given is exclusive of mixing, bags, and bagging, and is the value at Leith or Glasgow.
DISSOLVED BONES	Must be pure—*i.e.*, containing nothing but natural bones and sulphuric acid.

INSTRUCTIONS FOR VALUING MANURES.

The unit used for the valuation of manures is the hundredth part of a ton, and as the results of analyses of manures are expressed in parts per hundred, the percentage of any ingredient of a manure when multiplied by the price of the unit of that ingredient represents the value of the quantity of it contained in a ton.

As an example take muriate of potash; a good sample (see p. 46) will be guaranteed to contain 50 per cent of oxide of potash. All potash manures are valued according to the amount of potash (oxide of potash) they yield, and muriate of potash yields 50 per cent potash (K_2O)—*i.e.*, 50 units per ton; and as a ton of muriate of potash costs £9, 2s. 6d., the price of the unit is the fiftieth part of that—viz., 3/7¾. If on analysis a sample of muriate of potash guaranteed to contain 50 per cent of potash is found to contain only 48 per cent, the price per ton will be 7/3½ (twice 3/7¾) less—viz., £8, 15s. 2½d.

Similarly with all other manures, the price per unit is derived from the price per ton of a sample of good material up to its guarantee, and therefore the proper price per ton of a manure is found by multiplying the price of the unit of the valuable ingredient by the percentage as found by analysis. If a manure contains more than one valuable ingredient, the unit value of each ingredient is multiplied by its percentage, and the values so found when added together give approximately the price per ton of the manure.

Nitrate of soda contains no ammonia, but it contains nitrogen, and 14 units of nitrogen are equivalent to 17 units of ammonia.

The commercial values of manures are determined by means of the UNITS in the following manner:—

Take the results of analysis of the manure, and look for the following substances:—

Phosphates dissolved (or soluble phosphoric acid)
Phosphates undissolved (or insoluble phosphoric acid)
Total phosphoric acid
Nitrogen
Potash

No other items but these are to be valued.

Should the results of analysis or the guarantee not be expressed in that way, the chemist or the seller should be asked to state the quantities in these terms.

Suppose the manure is ground mineral phosphate—

The proportion of phosphate present in a sample guaranteed to contain 34 per cent phosphoric acid, may be 32 per cent phosphoric acid. The price per unit of phosphoric acid in ground mineral phosphate (34 per cent grade) is 1s. 11¾d. The value of ground mineral phosphate containing 32 per cent phosphoric acid is therefore 32 times 1s. 11¾d., equal to £3, 3s. 4d. per ton.

Suppose the manure is a superphosphate—say an ordinary superphosphate, 15 per cent soluble phosphoric acid,—the price per unit of phosphoric acid in superphosphate (16 per cent grade) is 3/7. It is valued thus—

Soluble phosphoric acid. 15 times 3/7, equal to £2, 13s. 9d.

Insoluble phosphoric acid is not valued in a superphosphate.

Suppose the manure is a compound fertiliser containing 4 per cent nitrogen; 7 per cent soluble phosphoric acid; 3 per cent insoluble phosphoric acid; and 4 per cent potash.

The value of the—

Nitrogen	will be 4	times	11/-	=	£2	4	0	per ton.
Soluble phosphoric acid	„ 7	„	4/3	=	1	9	9	„
Insoluble „	„ 3	„	2/9	=	0	8	3	„
Potash	„ 4	„	4/-	=	0	16	0	„
					£4	18	0	

The value of this manure will thus be £4, 18s. per ton, exclusive of the cost of mixing, bags, and bagging.

Note.—The units have reference solely to the MARKET PRICES of Manures, and not to their AGRICULTURAL VALUES.

TABLE OF COMPENSATION VALUES FOR 1929.

TABLE SHOWING THE VALUE OF FEEDING-STUFFS AS MANURE PER TON, AND THE COMPENSATION VALUE PER TON OF FOOD CONSUMED, BASED ON THE AVERAGE UNIT PRICES OF FERTILISERS FOR 1929.

The following is a Table showing (under Section A) the average proportions of digested nitrogen, undigested nitrogen, phosphoric acid, and potash present in the feeding-stuffs named. The Table also shows the value per unit of nitrogen (digested and undigested), phosphoric acid, and potash, the prices per unit being the value per unit for compound manures prevailing for 1929. Under Section B of the Table is shown the compensation value per ton of food consumed for each of the feeding-stuffs named, based on the unit prices for 1929. Column (1) of Section B of the Table shows the value per ton recovered in dung; Col. (2) of the same section shows the value of the lasting part of dung per ton; while the remaining three columns show the residual values per ton after one crop, two crops, and three crops have been removed.

In accordance with the decision arrived at by the Committee appointed by a representative meeting of Scottish agriculturists, who reported in September 1917 on the "Compensation for Manurial Improvements and Cumulative Fertility," under the Agricultural Holdings (Scotland) Act, 1908, the value of undigested nitrogen per ton as manure is calculated as being 70 per cent of the value of digested nitrogen. The residual value, after one crop has been removed, is taken as one-half of the original residual value. Residual values, after one crop has been removed, are reduced by one-half after each crop.

FOODS.	VALUE PER					
	Digested Nitrogen.			Undigested Nitrogen.		
	Per cent in food. (1)	Value at 11s. per unit. (2)	Two-fifths value to manure. (3)	Per cent in food. (4)	* Value at 7s. 8d. per unit. (5)	* Three-fourths value to manure. (6)
		s. d.	s. d.		s. d.	s. d.
Cotton-cake, decorticated .	5·92	65 1	26 0	0·98	7 6	5 8
Cotton-cake, undecorticated .	2·73	30 0	12 0	0·81	6 3	4 8
Linseed-cake	4·08	44 11	18 0	0·67	5 2	3 11
Linseed	3·28	36 1	14 5	0·32	2 5	1 10
Soya-bean cake	6·10	67 1	26 10	0·75	5 9	4 4
Palm-nut cake	1·88	20 8	8 3	0·62	4 9	3 7
Cocoa-nut cake	2·65	29 2	11 8	0·75	5 9	4 4
Earth-nut cake	6·86	75 6	30 2	0·76	5 10	4 5
Rape cake	3·97	43 8	17 6	0·93	7 2	5 5
Beans	3·48	38 3	15 4	0·52	4 0	3 0
Peas	3·10	34 1	13 8	0·50	3 10	2 11
Wheat	1·49	16 5	6 7	0·31	2 5	1 10
Barley	1·16	12 9	5 1	0·49	3 9	2 10
Oats	1·52	16 9	6 8	0·48	3 8	2 9
Maize	1·22	13 5	5 4	0·48	3 8	2 9
Rice-meal	1·08	11 11	4 9	0·82	6 3	4 8
Locust beans	0·82	9 0	3 7	0·38	2 11	2 2
Malt	1·34	14 9	5 11	0·36	2 9	2 1
Malt culms	3·12	34 4	13 9	0·78	6 0	4 6
Bran	1·98	21 9	8 8	0·52	4 0	3 0
Brewers' and distillers' grains (dried)	2·34	25 9	10 4	0·96	7 4	5 6
Brewers' and distillers' grains (wet)	0·59	6 6	2 7	0·22	1 8	1 3
Dried distillery dreg . .	3·45	37 11	15 2	1·86	14 3	10 8
Clover hay	1·21	13 4	5 4	1·03	7 11	5 11
Meadow hay	0·88	9 8	3 10	0·62	4 9	3 7
Wheat straw	0·02	0 3	0 1	0·43	3 4	2 6
Barley straw	0·10	1 1	0 5	0·30	2 4	1 9
Oat straw	0·17	1 10	0 9	0·33	2 6	1 11
Mangolds	0·15	1 8	0 8	0·07	0 6	0 5
Swedes	0·16	1 9	0 8	0·09	0 8	0 6
Turnips	0·13	1 5	0 7	0·05	0 .5	0 4
Fish-meal	8·08	88 11	35 7	0·90	6 11	5 2

See last paragraph of explanatory note to the Table.

A. TON AS MANURE.						B. COMPENSATION VALUE PER TON OF FOOD CONSUMED.				
Phosphoric Acid.			Potash.			† (1) Value recovered in dung.	‡ (2) Value of lasting part of dung.	Residual Value after		
Per cent in food. (7)	Value at 4s. 3d. per unit. (8)	Three-fourths value to manure. (9)	Per cent in food. (10)	Value at 4s. per unit. (11)	Three-fourths value to manure. (12)	(13)	(14)	* (3) One crop. (15)	* (4) Two crops. (16)	* (5) Three crops. (17)
	s. d.	s. d.		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
3·10	13 2	9 11	2·00	8 0	6 0	47 7	21 7	10 10	5 5	2 9
2·00	8 6	6 5	2·00	8 0	6 0	29 1	17 1	8 7	4 4	2 2
2·00	8 6	6 5	1·40	5 7	4 2	32 6	14 6	7 3	3 8	1 10
1·54	6 7	4 11	1·37	5 6	4 2	25 4	10 11	5 6	2 9	1 5
1·30	5 6	4 2	2·20	8 10	6 8	42 0	15 2	7 7	8 10	1 11
1·20	5 1	3 10	0·50	2 0	1 6	17 2	8 11	4 6	2 3	1 2
1·40	5 11	4 5	2·00	8 0	6 0	26 5	14 9	7 5	3 9	1 11
2·00	8 6	6 5	1·50	6 0	4 6	45 6	15 4	7 8	3 10	1 11
2·50	10 8	8 0	1·50	6 0	4 6	35 5	17 11	9 0	4 6	2 3
1·10	4 8	3 6	1·30	5 2	3 11	25 9	10 5	5 3	2 8	1 4
0·85	3 7	2 8	0·96	3 11	2 11	22 2	8 6	4 3	2 2	1 1
0·85	3 7	2 8	0·53	2 1	1 7	12 8	6 1	3 1	1 7	0 10
0·75	3 2	2 5	0·55	2 2	1 8	12 0	6 11	3 6	1 9	0 11
0·60	2 7	1 11	0·50	2 0	1 6	12 10	6 2	3 1	1 7	0 10
0·60	2 7	1 11	0·37	1 6	1 2	11 2	5 10	2 11	1 6	0 9
0·60	2 7	1 11	0·37	1 6	1 2	12 6	7 9	3 11	2 0	1 0
0·80	3 5	2 7	0·80	3 2	2 5	10 9	7 2	3 7	1 10	0 11
0·80	3 5	2 7	0·60	2 5	1 10	12 5	6 6	3 3	1 8	0 10
2·00	8 6	6 5	2·00	8 0	6 0	30 8	16 11	8 6	4 3	2 2
2·70	11 6	8 8	1·45	5 10	4 5	24 9	16 1	8 1	4 1	2 1
1·61	6 10	5 2	0·20	0 10	0 8	21 8	11 4	5 8	2 10	1 5
0·42	1 9	1 4	0·05	0 2	0 2	5 4	2 9	1 5	0 9	0 5
0·44	1 10	1 5	0·22	0 11	0 8	27 11	12 9	6 5	3 3	1 8
0·57	2 5	1 10	1·50	6 0	4 6	17 7	12 3	6 2	3 1	1 7
0·40	1 8	1 3	1·60	6 5	4 10	13 6	9 8	4 10	2 5	1 3
0·24	1 0	0 9	0·80	3 2	2 5	5 9	5 8	2 10	1 5	0 9
0·18	0 9	0 7	1·00	4 0	3 0	5 9	5 4	2 8	1 4	0 8
0·24	1 0	0 9	1·00	4 0	3 0	6 5	5 8	2 10	1 5	0 9
0·07	0 4	0 3	0·40	1 7	1 2	2 6	1 10	0 11	0 6	0 3
0·06	0 3	0 2	0·22	0 11	0 8	2 0	1 4	0 8	0 4	0 2
0·05	0 3	0 2	0·30	1 2	0 11	2 0	1 5	0 9	0 5	0 3
7·24	30 9	23 1	0·50	2 0	1 6	65 4	29 9	14 11	7 6	3 9

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† The figures in column (13) are the sum of columns (3), (6), (9), and (12).

‡ The figures in column (14) are the figures in column (13) from which the corresponding figures in column (3) have been subtracted.

BOTANICAL DEPARTMENT

Consulting Botanist to the Society—(vacant)

The Society have fixed the following rates of charge for the examination of plants and seeds for the *bona fide* and individual use and information of members of the Society (not being seedsmen), who are particularly requested, when applying to the Consulting Botanist, to mention the kind of examination they require, and to quote its number in the subjoined schedule. The charge for examination must be paid at the time of application, and the carriage of all parcels must be prepaid.

Scale of Charges.

1. A report on the purity, amount, and nature of foreign materials, and the germinating power of a sample of seed, 1s.
2. Determination of the species of any weed or other plant, or of any vegetable parasite, with a report on its habits and the means for its extermination or prevention, 1s.
3. Report on any disease affecting farm crops, 1s.
4. Determination of the species of any natural grass or fodder plant, with a report on its habits and pasture or feeding value, 1s.

The Consulting Botanist's Reports are furnished to enable members—purchasers of seeds and corn for agricultural or horticultural purposes—to test the value of what they buy, and are not to be used or made available for advertising or trade purposes by seedsmen or otherwise.

Purchase of Seeds.

The purchaser should obtain from the vendor, by invoice or other writing, the proper designation of the seed he buys, with a guarantee of the percentage of purity and germination, and of its freedom from ergot, and in the case of clover, from the seeds of dodder or broom-rape.

It is strongly recommended that the purchase of *prepared mixtures* of seeds should be avoided. The different seeds should be purchased separately and mixed by the farmer: mixtures cannot be tested for germination.

The Sampling of Seeds.

The utmost care should be taken to secure a fair and honest sample. This should be drawn from the bulk delivered to the purchaser, and not from the sample sent by the vendor.

When legal evidence is required, the sample should be taken from the bulk, and placed in a sealed bag in the presence of a witness.. Care should be taken that the sample and bulk be not tampered with after delivery, or mixed or brought in contact with any other sample or bulk.

At least one ounce of grass and other small seeds should be sent, and two ounces of cereals and the larger seeds. When the bulk is obviously impure the sample should be at least double the amount specified. Grass seeds should be sent at least four weeks, and seeds of clover and cereals two weeks, before they are to be used.

The exact name under which the sample has been sold and purchased should accompany it.

Reporting the Results.

The Report will be made on a schedule in which the nature and amount of impurities will be stated, and the number of days each sample has been under test, with the percentage of the seeds which have germinated.

"Hard" clover seeds, though not germinating within the time stated, will be considered good seeds, and their percentage separately stated.

The impurities in the sample, including the chaff of the species tested, will be specified in the schedule, and only the percentage of the pure seed of that species will be reported upon; but the REAL VALUE of the sample will be stated. The Real Value is the combined percentages of purity and germination, and is obtained by multiplying these percentages and dividing by 100: thus in a sample of Meadow Fescue having 88 per cent purity and 95 per cent germination, 88 multiplied by 95 gives 8360, and this divided by 100 gives 83·6, the Real Value.

Selecting Specimens of Plants.

The whole plant should be taken up and the earth shaken from the roots. If possible the plants must be in flower or fruit. They should be packed in a light box, or in a firm paper parcel.

Specimens of diseased plants or of parasites should be forwarded as fresh as possible. They should be placed in a bottle, or packed in tinfoil or oil-silk.

All specimens should be accompanied with a letter specifying the nature of the information required, and stating any local circumstances (soil, situation, &c.) which, in the opinion of the sender, would be likely to throw light on the inquiry.

Parcels or letters containing seeds or plants for examination (carriage or postage paid) must be addressed to ....

NOTE.—*Members are reminded that seeds may now be tested at the Department of Agriculture for Scotland Seed-testing Station. Samples should be addressed to Mr Anderson,* SEED-TESTING STATION, *East Craigs, Corstorphine, Midlothian.*

ENTOMOLOGICAL DEPARTMENT

Consulting Entomologist to the Society—Dr R. STEWART MACDOUGALL,
9 Dryden Place, Edinburgh.

Arrangements have been made with Mr R. Stewart MacDougall, M.A., D.Sc., Edinburgh, to advise members of the Society regarding insects or allied animals which, in any stage of their development, infest—

(*a*) Farm crops.
(*b*) Stored grain.
(*c*) Garden and greenhouse plants.
(*d*) Fruit and fruit trees.
(*e*) Forest trees and stored timber.
(*f*) Live stock (including poultry).

Members consulting Dr MacDougall should forward with their queries examples of the injured plants, or the injured parts of plants, &c., as well as specimens of the insects or other animals believed to be the cause of the injury.

Specimens should be sent in tin or wooden boxes, or in quills, to prevent injury in transmission.

Address letters and parcels (carriage or postage paid) to Dr R. Stewart MacDougall, 9 Dryden Place, Edinburgh.

The Directors have fixed the fee payable by members to Dr MacDougall at 1s. for each case upon which he is consulted : this fee must be sent to him along with the application for information.

PREMIUMS

GENERAL REGULATIONS FOR COMPETITORS.

1. It is to be distinctly understood that the Society is not responsible for the views, statements, or opinions of any of the writers whose papers are published in the 'Transactions.'

2. All reports must be legibly written, and on one side of the paper only; they must specify the number and subject of the Premium for which they are in competition; they must bear a distinguishing motto, and be accompanied by a sealed letter, similarly marked, containing the name and address of the reporter—initials must not be used.

3. No sealed letter, unless belonging to a report found entitled to the Premium offered, or a portion of it, will be opened without the author's consent.

4. Reports for which a Premium, or a portion of a Premium, has been awarded, become the property of the Society, and cannot be published in whole or in part, nor circulated in any manner, without the consent of the Directors. All other papers will be returned to the authors if applied for within twelve months.

5. The Society is not bound to award the whole or any part of a Premium.

6. All reports must be of a practical character, containing the results of the writer's own observation or experiment, and the special conditions attached to each Premium must be strictly fulfilled. General essays, and papers compiled from books, will not be rewarded or accepted. Weights and measurements must be indicated by the imperial standards.

7. The Directors, before or after awarding a Premium, shall have power to require the writer of any report to verify the statements made in it.

8. The decisions of the Board of Directors are final and conclusive as to all matters relating to Premiums, whether for Reports or at General or District Shows; and it shall not be competent to raise any question or appeal touching such decisions before any other tribunal.

9. The Directors will welcome papers from any Contributor on any suitable subject, whether included in the Premium List or not; and if the topic and the treatment of it are both approved, the writer may be remunerated and his paper published.

CLASS I.

REPORTS.

SECTION 1.—THE SCIENCE AND PRACTICE OF AGRICULTURE.

FOR APPROVED REPORTS.

1. On any useful practice in Rural Economy adopted in other countries, and susceptible of being introduced with advantage into Scotland—The Gold Medal. To be lodged by 1st November in any year.

The purpose chiefly contemplated by the offer of this premium is to induce travellers to notice and record such particular practices as may seem calculated to benefit Scotland. The Report to be founded on personal observation.

2. Approved Reports on other suitable subjects. To be lodged by 1st November in any year.

SECTION 2.—ESTATE IMPROVEMENTS.

FOR APPROVED REPORTS.

1. By the Proprietor in Scotland who shall have executed the most judicious, successful, and extensive Improvement—The Gold Medal, or Ten Sovereigns. To be lodged by 1st November in any year.

Should the successful Report be written for the Proprietor by his resident factor or farm manager, a Minor Gold Medal will be awarded to the writer in addition to the Gold Medal to the Proprietor.

The merits of the Report will not be determined so much by the mere extent of the improvements, as by their character and relation to the size of the property. The improvements may comprise reclaiming, draining, enclosing, planting, road-making, building, and all other operations proper to landed estates. The period within which the operations may have been conducted is not limited, except that it must not exceed the term of the Reporter's proprietorship.

2. By the Proprietor or Tenant in Scotland who shall have reclaimed within the ten preceding years not less than forty acres of Waste Land—The Gold Medal, or Ten Sovereigns. To be lodged by 1st November in any year.

3. By the Tenant in Scotland who shall have reclaimed within the ten preceding years not less than twenty acres of Waste Land—The Gold Medal, or Ten Sovereigns. To be lodged by 1st November in any year.

4. By the Tenant in Scotland who shall have reclaimed not less than ten acres within a similar period—The Medium Gold Medal, or Five Sovereigns. To be lodged by 1st November in any year.

The Reports in competition for Nos. 2, 3, and 4 may comprehend such general observations on the improvement of waste lands as the writer's experience may lead him to make, but must refer especially to the lands reclaimed—to the nature of the soil—the previous state and probable value of the subject—the obstacles opposed to its improvement—the details of the various operations—the mode of cultivation adopted—and the produce and value of the crops produced. As the required extent cannot be made up of different patches of land, the improvement must have relation to one subject; it must be of profitable character, and a rotation of crops must have been concluded before the date of the Report. *A detailed statement of the expenditure and return* and a certified measurement of the ground are requisite.

5. By the Proprietor or Tenant in Scotland who shall have improved within the ten preceding years the Pasturage of not less than thirty acres, by means of top-dressing, draining, or otherwise, without tillage, in situations where tillage may be inexpedient—The Gold Medal, or Ten Sovereigns. To be lodged by 1st November in any year.

6. By the Tenant in Scotland who shall have improved not less than ten acres within a similar period—The Minor Gold Medal. To be lodged by 1st November in any year.

Reports in competition for Nos. 5 and 6 must state the particular mode of management adopted, the substances applied, the elevation and nature of the soil, its previous natural products, and the changes produced.

SECTION 3.—HIGHLAND INDUSTRIES AND FISHERIES.

FOR APPROVED REPORTS.

1. The best mode of treating native Wool; cleaning, carding, dyeing, spinning, knitting, and weaving by hand in the Highlands and Islands of Scotland—Five Sovereigns. To be lodged by 1st November in any year.

SECTION 4.—MACHINERY.

FOR APPROVED REPORTS.

To be lodged by 1st November in any year.

SECTION 5.—FORESTRY DEPARTMENT.

FOR APPROVED REPORTS.

1. On Plantations of not less than eight years' standing formed on deep peat-bog—The Medium Gold Medal, or Five Sovereigns. To be lodged by 1st November in any year.

The premium is strictly applicable to deep peat or flow moss; the condition of the moss previous to planting, as well as at the date of the Report, should, if possible, be stated.

The Report must describe the mode and extent of the drainage, and the effect it has had in subsiding the moss—the trenching, levelling, or other preliminary operations that may have been performed on the surface—the mode of planting—kinds, sizes, and number of trees planted per acre—and their relative progress and value, as compared with plantations of a similar age and description grown on other soils in the vicinity.

CLASS II.

DISTRICT COMPETITIONS.

REGULATIONS, 1929.

Grants in aid of District Competitions *for* 1930 *must be applied for before* 1*st November* 1929, *on Forms to be obtained from the Secretary.*

When a Money Grant has expired, the District cannot apply again for another Money Grant for four years.

1. GRANTS TO DISTRICT SOCIETIES FOR HORSES, CATTLE, SHEEP, AND PIGS.

1. Class of Stock—Limit of Grants, £340.—The Highland and Agricultural Society will make Grants to District Societies for prizes for *Breeding Animals* of any of the following Classes of Stock, viz. :—

Cattle.

Shorthorn.
Aberdeen-Angus.
Galloway.
Belted Galloway.
Highland.
Ayrshire.
British-Friesian.
Red Poll.
Jersey.
Shetland.

Horses.

Draught Horses.
Hunters.
Hackneys.
Ponies.
Shetland Ponies.

Sheep.

Blackface.
Cheviot.
Border Leicester.
Half-Bred.
Shropshire.
Oxford-Down.
Suffolk.
Wensleydale.

Pigs.

Any Pure Breed.

Cross-bred[1] animals are not eligible. The Prizes must be confined to *Breeding* Animals ; "bullocks," "geldings," "wethers," and "hog pigs" are excluded.

2. All Competitions must be at the instance of a local Society. A Committee of Management shall be appointed, and the Convener of the Committee **must be a Member of the Highland and Agricultural Society.**

3. Grant to District, £12.—The portion of the Grant to any one District Society shall not exceed the sum of £12 in any one year.

4. Allocation of Grant.—The Grant from the Highland and Agricultural Society is not to be applied as a Grant in aid of the Premiums offered by the Local Society, but must be offered in the form of separate Prizes for the Animals chosen ; **and the Prizes must be announced in the Premium List and Catalogue of the Show as "given by the Highland and Agricultural Society."**

5. Continuance of Grant—Three Years.—The Money Grant shall continue for three alternate years, provided always that the District Society shall, in the two intermediate years, continue the competition by offering Premiums for the same class of Stock as that selected in each

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[1] *Exceptions to this rule may, however, be authorised by the Board of Directors, on application. The Directors are prepared to consider applications from local Societies which desire to use their grants, or part thereof, as prizes for cross-bred calves and one-year-old cross-bred cattle.*

previous year to compete for the Highland and Agricultural Society's Prizes. If no competition takes place for two years the Grant expires.

6. When it is agreed to hold the General Show of the Society in any district, no provincial show shall be held in that district in the **three months** immediately preceding the date of the General Show. **Any infringement of this Rule shall entail cancellation of the grant.**

7. MEDALS IN INTERMEDIATE YEARS.—In the two alternate years the Highland and Agricultural Society will place three Silver Medals at the disposal of the District Societies, for the same classes of Stock as those for which the Money Premiums are offered, provided that not less than three lots are exhibited in the same class.

8. RULES OF COMPETITION.—The Rules of Competition for the Premiums, the Funds for which are derived from Grants of the Highland and Agricultural Society, shall be such as are generally enforced by the Society receiving the Grant for Premiums offered by itself.

9. AREA AND PARISHES—FIVE PARISHES.—When making application for Grants from the Highland and Agricultural Society, the District Society must delineate the area and the number of parishes comprised in the district, and, *except in special cases*, no District Society shall be entitled to a Grant whose show is not open to at least *five* Parishes.

10. REPORTS.—Blank Forms for Reports will be furnished to the Secretaries of the different District Societies. Both in the years when the Grant is offered and in the **two intermediate years,** detailed reports of the competition must be given on these Forms and lodged with the Secretary of the Highland and Agricultural Society as soon as possible after the Show, and in no case later than **1st November.** These reports are subject to the approval of the Directors of the Highland and Agricultural Society, against whose decision there shall be no appeal. All Reports must be signed and certified as marked in the Form. The Grant will lapse if no Report is lodged.

11. GRANTS—WHEN PAID.—The Grants made to District Societies will be paid in December after the Reports of the awards of the prizes have been received and found to be in order and passed by the Board of Directors, the Money Grants being paid to the Secretaries of the Local Societies and the Medals sent direct to the winners. *The Secretary of the District Society must not on any condition whatever pay any premium offered by the Highland and Agricultural Society until he has been informed that the awards are in order and has received the Grant from the Highland and Agricultural Society.*

12. RENEWAL OF APPLICATION.—No application for renewal of a Money Grant to a District Society will be entertained until the expiration of *four years* from the termination of the last Grant.

13. DISPOSAL OF APPLICATIONS.—In disposing of applications for District Grants, the Directors of the Highland and Agricultural Society shall keep in view the length of interval that has elapsed since the expiration of the last Grant, giving priority to those District Societies which have been longest off the list.

DISTRICTS.

Final Year.

1. BLACK ISLE FARMERS' SOCIETY.—*Convener*, Frank A. Middleton, Rosefarm, Cromarty; *Secretary*, F. Scott, The Carslate, Rosemarkie. Granted 1922. (In abeyance 1923, on account of Inverness Show.) (In abeyance 1926 and 1927—No Shows held.)
2. WEST TEVIOTDALE AGRICULTURAL SOCIETY.—*Convener*, James W. Jackson, Hassendean, Hawick; *Secretary*, W. S. Nichol, 11 High Street, Hawick. Granted 1924. (No competition 1925.)

3. DEESIDE AGRICULTURAL ASSOCIATION.—*Convener*, John Thomson, Upper Beanshill, Milltimber ; *Joint-Secretaries*, John Cooper, Ley, Banchory, and David Humble, Dowalty, Crathes. Granted 1925.
4. EAST OF FIFE AGRICULTURAL SOCIETY.—*Convener*, John Carstairs, Carnbee, Pittenweem ; *Secretary*, George R. Dingwall, Colinsburgh. Granted 1925.
5. ST MARY'S ISLE ESTATES AND DISTRICT AGRICULTURAL SOCIETY.—*Convener*, W. P. Gilmour, Balmangan, Kirkcudbright ; *Secretaries*, Messrs Gibson & Montgomery, Solicitors, Kirkcudbright. Granted 1925.
6. GARIOCH FARMERS' CLUB.—*Convener*, George W. Brown, Myreton, Insch ; *Secretary*, Alexander Watt, Cairnhill, Rothney, Insch. Granted 1925.

2nd Year.

7. UNITED EAST LOTHIAN AGRICULTURAL SOCIETY.—*Convener*, A. G. Spence, Longyester, Gifford ; *Secretary*, William Burnet, Solicitor, Haddington. Granted 1926. (In abeyance 1927, on account of Edinburgh Show.)
8. ARDOCH AGRICULTURAL SOCIETY.—*Convener*, H. Adam, 8 Viewfield Place, Stirling : *Secretary*, James Forbes, Al Arish, Braco. Granted 1927.
9. BERWICKSHIRE AGRICULTURAL ASSOCIATION.—*Convener*, Thomas A. Swan, Lanark Lodge, Duns ; *Secretary*, William Wright, Murray Street, Duns. Granted 1927.
10. GLENKENS AGRICULTURAL SOCIETY.—*Convener*, Lord Sinclair, Milton Park, Dalry ; *Secretary*, J. M. Garmory, Pomona Terrace, New Galloway. Granted 1927.
11. ISLAY, JURA AND COLONSAY AGRICULTURAL ASSOCIATION.—*Convener*, Hugh Morrison, M.P., of Islay, Islay ; *Secretary*, Iain M. Mactaggart, Royal Bank Buildings, Bowmore, Islay. Granted 1927.

1st Year.

12. MOFFAT AND UPPER ANNANDALE AGRICULTURAL AND HORTICULTURAL SOCIETY.—*Convener*, J. Roy Henderson, Capplegill, Moffat ; *Secretary*, George E. Bruges, Middlegill, Moffat. Granted 1928. (In abeyance 1928—No Show held.)
13. CROMAR, UPPER DEE, AND DONSIDE AGRICULTURAL SOCIETY.—*Convener*, Charles Strachan, Tillyorn, Corse, Lumphanan ; *Secretary*, William Anderson, Home Farm, Hopewell, Tarland. Granted 1929.
14. MONKWOOD AND MINISHANT DISTRICT SOCIETY.—*Convener*, Colonel Norman Kennedy, D.S.O., Doonholm, Ayr ; *Secretary*, Walter Gardner, M.R.C.V.S., Woodside, Maybole. Granted 1929.
15. LOCKERBIE AGRICULTURAL SOCIETY.—*Convener*, D. J. Bell-Irving, Annandale House, Lockerbie ; *Secretary*, Thomas Henderson, Solicitor, Lockerbie. Granted 1929.
16. UPPER WARD OF LANARKSHIRE AGRICULTURAL SOCIETY.—*Convener*, Alexander Clarkson, Pretts Mill, Lanark ; *Secretary*, Robert Pate, Royal Bank, Lanark. Granted 1929.
17. MOUNT BLAIR AGRICULTURAL SOCIETY.—*Convener*, James M'L. Marshall, Bleaton Hallet, Blairgowrie ; *Secretary*, Alexander F. M'Intosh, Dunay, Blairgowrie. Granted 1929.
18. FORMARTINE AGRICULTURAL ASSOCIATION.—*Convener*, James Argo, of Tillymaud, Udny ; *Secretary*, James Skinner, Hawklaw, Ellon. Granted 1929.

(In Intermediate Year—8 Silver Medals.)

19. INVERURIE AGRICULTURAL SOCIETY.—*Convener*, James Durno, Crichie, Inverurie; *Secretary*, W. Gordon, Union Bank, Inverurie. Granted 1925. (In abeyance 1928, on account of Aberdeen Show.)
20. YTHANSIDE FARMERS' CLUB.—*Convener*, John N. Reid, of Cromleybank, Ellon; *Secretary*, John Walker, Southside, The Square, Ellon. Granted 1925. (In abeyance 1927—not awarded.)
21. ARRAN FARMERS' SOCIETY.—*Convener*, James J. Morton, Machrie Farm, Isle of Arran; *Secretary*, R. W. Campbell, Bank House, Blackwaterfoot, Arran. Granted 1926.
22. BUTE AGRICULTURAL SOCIETY.—*Convener*, William M'Millan, Millbrae, Ascog; *Secretary*, Dugald M'Alister, Bank of Scotland, Rothesay. Granted 1926.
23. CARRICK FARMERS' SOCIETY.—*Convener*, Thomas Smith, The Castle, Maybole; *Secretaries*, J. & J. M. Gibson, Royal Bank, Maybole. Granted 1926.
24. MULL AND MORVERN AGRICULTURAL SOCIETY.—*Convener*, J. H. Munro Mackenzie of Calgary, Calgary, Isle of Mull; *Secretary*, A. A. MacGilp, The Clydesdale Bank, Limited, Tobermory, Isle of Mull. Granted 1926.
25. STRATHDON AGRICULTURAL ASSOCIATION.—*Convener*, Charles Christie, Estates Office, Strathdon; *Secretary*, William M'Robert, Culfork, Strathdon. Granted 1926.
26. STRATHSPEY FARMERS' CLUB.—*Convener*, Peter Grant, Advie Mains, Advie; *Secretary*, John G. MacDougall, Dunolly, Grantown-on-Spey. Granted 1926.
27. STRATHBOGIE FARMERS' CLUB.—*Convener*, Alexander Simpson, Broadland, Cairnie, Aberdeenshire; *Secretary*, Alexander P. Brown, 19 Richmond Road, Huntly. Granted 1927. (In abeyance 1928—not awarded.)
28. ANNAN AND DISTRICT AGRICULTURAL SOCIETY.—*Convener*, John Roddick, Solicitor, Annan; *Secretary*, James Risk, Kinmount Estate Office, Annan. Granted 1928.
29. BATHGATE AGRICULTURAL ASSOCIATION.—*Convener*, James W. Adamson, The Inch, Bathgate; *Secretary*, Alexander Fleming, 62 Hopetoun Street, Bathgate. Granted 1928.
30. DALBEATTIE AGRICULTURAL SOCIETY.—*Convener*, Major Wellwood Maxwell of Kirkennan, Dalbeattie; *Secretary*, J. E. Milligan, The Clydesdale Bank, Limited, Dalbeattie. Granted 1928.
31. MEIKLEOUR SPORTS AND SHOW SOCIETY.—*Convener*, David Fernie, Lochside, Coupar-Angus; *Secretary*, John Leggat, Meikleour, Perthshire. Granted 1928.

In abeyance 1929.

32. CLACKMANNANSHIRE UNION AGRICULTURAL SOCIETY.—*Convener*, John W. Prentice, Craigrie, Clackmannan; *Hon Secretary*, G. F. Piggott, Union Street, Alloa. Granted 1927.

In 1929.

Nos. 1, 2, 3, 4, 5, and 6 are in competition for the final year.

Nos. 7, 8, 9, 10, and 11 are in competition for the second year.

Nos. 12, 13, 14, 15, 16, 17, and 18 are in competition for the first year.

Nos. 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, and 31 are in intermediate year and compete for local Premiums. (See Rules 5 and 7.)

No. 32 is in abeyance on account of the Alloa Show.

2. GRANTS TO HORSE ASSOCIATIONS, &c., FOR STALLIONS FOR AGRICULTURAL PURPOSES.

1. The Highland and Agricultural Society will make Grants to Horse Associations and other Societies in different districts engaging Stallions for agricultural purposes. The total sum expended by the Highland and Agricultural Society in such Grants shall not exceed the sum of £210 in any one year.

2. The portion of the Grant to any one Association or Society shall not exceed the sum of £15 in any one year.

3. The Grant will be available only for Stallions which, for the year to which the Grant applies, are Registered in the Register of Certified Draught Stallions published by the Board of Agriculture. (For information regarding the Registration of Stallions, apply to the Secretary of the Ministry of Agriculture and Fisheries, 10 Whitehall Place, London, S.W.)

4. The Grant will continue for three years provided the Association receiving the Grant shall hire a Registered Stallion in the two intermediate years.

5. In the event of a Horse not being engaged in any one year while the provisions of the Grant are in force, the Grant made by the Highland and Agricultural Society will cease.

6. Rules 2 (Committee and Convener), 10 (Reports), 11 (Time of Payment), 12 (Renewal of Grant), and 13 (Disposal of Applications) applicable to Section 1, shall be applicable to this Section.

DISTRICTS.

Final Year.

1. Cromar and Upper Deeside Heavy Horse-Breeding Society.—*Convener*, William Hunter, Old Town of Kincraigie, Tarland; *Secretary*, Duncan Reid, Craskins, Tarland. Granted 1925.

2nd Year.

2. East Lothian Clydesdale Horse-Breeding Society. — *Convener*, Charles H. Beveridge, Elphinstone Tower, Tranent; *Secretary*, W. Burnet, Solicitor, Haddington. Granted 1927.
3. Kirriemuir District Agricultural Association.—*Convener*, Oliver Turnbull, Baldoukie, Forfar; *Secretary*, M. B. Wallace, National Bank, Kirriemuir. Granted 1927.
4. Orkney West Mainland Horse-Breeding Society. — *Convener*, William Corrigall, North Bigging, Harray, Kirkwall; *Secretary*, John G. S. Flett, Nistaben, Harray, Kirkwall. Granted 1927.

1st Year.

5. Nairnshire Farming Society.—*Convener*, George M. Allan, Auchnacloich, Nairn; *Secretary*, A. J. MacKintosh, St Colms, Auldearn, Nairn. Granted 1929.
6. Rousay Agricultural Society. — *Convener*, James H. Johnston, Trumland Farm, Rousay; *Secretary*, William Gibson, Hullion, Rousay, Orkney. Granted 1929.
7. Selkirk and Galashiels Agricultural Society.—*Convener*, John Elliot, Balnakiel, Galashiels; *Secretary*, James Rosie, Co-operative Buildings, Roxburgh Street, Galashiels. Granted 1929.
8. Scottish Central Horse-Breeding Association.—*Convener*, James Gray, Glenoonah, Kippen Station; *Secretary*, William Carrick, Newlands, Stirling. Granted 1929.

Intermediate Year—Grant in Abeyance.

9. BUCHLYVIE AND VALE OF MENTEITH HORSE-BREEDING AND STOCK IMPROVEMENT SOCIETY, LIMITED.—*Convener*, Thomas Syme, Shirgarton, Kippen ; *Secretary*, Miss M. M. Drysdale, 55 Colinton Road, Edinburgh. Granted 1926.
10. CENTRAL FORFARSHIRE HORSE-BREEDING SOCIETY.—*Convener*, James Scott, Ascurry, Letham, Forfar ; *Secretary*, Walter R. Findlay, Ochterlony Mains, Guthrie. Granted 1926.
11. EAST MAINLAND CO-OPERATIVE HORSE-BREEDING SOCIETY, LIMITED.—*Convener*, Alexander Calder, Sebay, Tankerness, Kirkwall ; *Secretary*, David J. Laughton, Castle, Quoyburray, Kirkwall. Granted 1926.
12. SOUTH DEESIDE STOCK IMPROVEMENT SOCIETY.—*Convener*, George Jamieson, Burnside, Netherly, Stonehaven ; *Secretary*, John Duncan, Craiglug Cottage, Durris. Granted 1928.

In 1929.

No. 1 is in competition for the final year.

Nos. 2, 3, and 4 are in competition for the second year.

Nos. 5, 6, 7, and 8 are in competition for the first year.

Nos. 9, 10, 11, and 12 are in abeyance, and compete for local Premiums. (See Rule 4.)

3. MEDALS IN AID OF PREMIUMS GIVEN BY LOCAL SOCIETIES.

The Society, being anxious to co-operate with local Associations, will give *a limited number of Silver Medals annually to Societies, not on the list of Cattle, Horse, or Sheep Premiums, in addition to the Money Premiums awarded in the Districts, for—*

1. Best Bull, Cow, or Heifer of any pure breed included in Section 1.
2. Best Stallion or Mare of any pure breed included in Section 1.
3. Best Tup or Pen of Ewes of any pure breed included in Section 1.
4. Best Boar, Sow, or Breeding-Pig of any pure breed.
5. Best Pens of Poultry.
6. Best Sample of any variety of Wool.
7. Best Sample of any variety of Seeds.
8. Best managed Farm.
9. Best managed Green Crop.
10. Best managed Hay Crop.
11. Best managed Dairy.
12. Best Sweet-Milk Cheese.
13. Best Cured Butter.
14. Best Fresh Butter.
15. Best collection of Roots.
16. Best kept Fences.
17. Best Sheep-Shearer.
18. Most expert Hedge-Cutter.
19. Most expert Labourer at Draining.
20. Best Maker of Oat-Cakes.

It is left to the local Society to choose out of the foregoing list the classes for which the Medals are to be competed.

The Medals are granted for two years, and lapse if not awarded in those years.

No Society shall receive more than two Medals in any year.

Aberdeenshire.

1. VALE OF ALFORD AGRICULTURAL ASSOCIATION.—*Convener*, The Right Hon. Lord Forbes, Castle Forbes, Keig; *Secretary*, Robert S. Law, New Keig, Keig. Granted 1928.
2. ABERDOUR AND NORTH-EASTERN AGRICULTURAL ASSOCIATION.—*Convener*, M. J. Keith, Aberdour House, Fraserburgh; *Secretary*, Alexander Rannie, Hillhead, Sandhaven, Fraserburgh. Granted 1929.

Banffshire.

3. THE NORTHERN SEEDS AND ROOTS ASSOCIATION.—*Convener*, James Green, Whyntie, Portsoy; *Secretary*, A. Bannerman Robb, M.A., B.L., 39 Seafield Street, Portsoy. Granted 1929.

Dumbartonshire.

4. CUMBERNAULD AGRICULTURAL SOCIETY.—*Convener*, A. Elhick Gray, Easter Dullater House, Dullater; *Secretary*, John Longwill, Parish Council Chambers, Cumbernauld. Granted 1928.

Orkney.

5. SOUTH RONALDSHAY AND BURRAY AGRICULTURAL SOCIETY.—*Convener*, John Tomison, Halcro, St Margaret's Hope; *Secretary*, George Esson, St Margaret's Hope, Orkney. Granted 1929.

Renfrewshire.

6. LOCHWINNOCH AGRICULTURAL SOCIETY.—*Convener*, C. Stuart Brown of Auchengrange, Lochwinnoch; *Secretary*, John Reid, National Bank Buildings, Johnstone. Granted 1928.

Stirlingshire.

7. DENNY AND DUNIPACE AGRICULTURAL ASSOCIATION.—*Convener*, Andrew Dunn, Duncarron, Denny; *Secretary*, John M'Millan, 37 Stirling Street, Denny. Granted 1929.

Wigtownshire.

8. WIGTOWN AGRICULTURAL SOCIETY.—*Convener*, John Smith, Borrowmoss, Wigtown; *Secretary*, Gavin Coupland, The Clydesdale Bank, Limited, Newton-Stewart. Granted 1928.

Applications from other Districts must be lodged with the Secretary of the Society *by 1st November next.*

RULES OF COMPETITION.

1. All Competitions must be at the instance of a local Society.

2. The classes for which Medals are granted must be in accordance with the list at page 63. The Committee shall select the classes, and specify them in the Report.

3. A Committee of Management shall be appointed, and the Convener of the Committee must be a Member of the Highland and Agricultural Society.

4. The Money Premiums given in the District must be not less than £2 for each Medal claimed.

5. The Medal for Sheep-Shearing shall always accompany the highest Money Premium.

6. There must not be fewer than three competitors in all the classes.

7. Regarding Reports, despatch of Medals, and application for renewal of Grant, Rules 10 and 11, Section 1, will apply.

8. When a grant of Medals has expired, the District cannot apply again for Medals for two years.

4. SPECIAL GRANTS.

ANNUAL.

£20 to the Ayrshire Agricultural Association, to be competed for at the Dairy Produce Show at Kilmarnock.—*Chairman of Directors*, Lieut.-Colonel W. T. R. Houldsworth of Kirkbride, Maybole; *Secretary*, John Howie, 58 Alloway Street, Ayr. Granted 1872.

£15 to the Northern Arts and Crafts Society.—*Convener*, Miss G. H. Macintosh, Raigmore, Inverness; *Joint-Secretaries*, Mrs Mitford, Berryfield, Lentran, and Miss Mary Mackintosh, Raigmore, Inverness. Granted 1922.

The British Dairymaids' Association.—*Convener*, Miss A. C. Spier, 52 Brownside Road, Cambuslang, Glasgow; *Secretary*, Miss J. Macdonald, 16 Rutland Square, Edinburgh. 1 Minor Gold Medal and 1 Medium Silver Medal for Champion Butter-making Competitions. Granted 1908.

The Scottish National Union of Allotment Holders.—*Secretary*, Archibald W. Fisher, 18 Hill Street, Edinburgh. £8 and 8 Medium Silver Medals for best Allotments.

The North of Scotland College of Agriculture.—*Secretary*, A. A. Prosser. 3 Silver Medals (1 Large, 1 Medium, and 1 Minor)—1st, 2nd, and 3rd Prizes respectively—for Stackyard Competition (*Sir John Fleming Cup* Competition). Granted 1925.

IN ALTERNATE YEARS.—GRANTS IN 1929.

£3 to Orkney Agricultural Society.—*Convener*, George Learmonth, Pow, Quoyloo, Stromness; *Secretary*, D. B. Peace, jun., 4 Old Scapa Road, Kirkwall, Orkney. Granted 1883.

£3 to Sanday Agricultural Society, Orkney.—*Convener*, W. Cowper Ward, Scar House, Sanday, Orkney; *Secretary*, John Wallace, Prattsfauld, Sanday, Orkney. Granted 1902.

£3 to East Mainland Agricultural Society, Orkney.—*Convener*, James G. Skea, Barns of Ayre, Deerness, Orkney; *Secretary*, David J. Laughton, Castle, Quoyburray, Kirkwall, Orkney. Granted 1898.

£3 to West Mainland Agricultural Society, Orkney.—*Convener*, George Learmonth, Pow, Quoyloo, Stromness; *Secretary*, James Wood, Skaill Farm, Sandwick, Stromness, Orkney. Granted 1900.

GRANTS IN ABEYANCE, 1929.

£3 to Rousay Agricultural Society, Orkney.—*Convener*, James Johnston, Trumland, Rousay, Orkney; *Secretary*, William Gibson, Hullion, Rousay, Orkney. Granted 1903.

£3 to South Ronaldshay and Burray Agricultural Society, Orkney.—*Convener*, John Tomison, Halcro, St Margaret's Hope, Orkney; *Secretary*, George Esson, St Margaret's Hope, Orkney. Granted 1904.

5. SCOTTISH WOMEN'S RURAL INSTITUTES.

A sum not exceeding £150 in each year will be given in special grants to Federations of Scottish Women's Rural Institutes. The amount of any one grant shall not exceed £10. Any Federation which has received a grant for two consecutive years shall not be eligible to again apply until after the expiry of two years.

Dumfriesshire Federation of Scottish Women's Rural Institutes.—*Convener*, Lady Maitland-Heriot, Whitecroft, Ruthwell; *Secretary*, Mrs Helen Ralston, Dabton, Thornhill. Granted 1928.

Fife Federation of Scottish Women's Rural Institutes.—*President*, Mrs Evelyn V. Baxter, The Grove, Upper Largo; *Secretary*, Mrs Gaskell, Balchrystie, Colinsburgh. Granted 1928.

Forfarshire County Federation of Scottish Women's Rural Institutes.—*Convener*, Mrs Anne Arnot Babington, The Manse, Glamis; *Secretary*, Mrs E. B. Soutar, Clive House, Letham. Granted 1928.

Peeblesshire Federation of Scottish Women's Rural Institutes.—*Convener*, Mrs R. O. Ainslie, Stobo; *Secretary*, Mrs Main, Traquair Mains, Innerleithen. Granted 1928.

Selkirkshire Federation of Scottish Women's Rural Institutes.—*Convener*, Mrs D. S. Meach, Hangingshaw, Selkirk; *Secretary*, Mrs Agnes J. Macgown, Fairholm, Ettrickbridge. Granted 1928.

Caithness Federation of Scottish Women's Rural Institutes.—*Convener*, Mrs A. Henderson, Stemster, Halkirk; *Secretary*, Miss A. S. M'I. Bain, Bowermadden, Bower, Wick. Granted 1929.

Dumbartonshire Federation of Scottish Women's Rural Institutes.—*Convener*, Mrs H. I. C. Martin, Drumhead, Cardross; *Secretary*, Miss S. E. C. Lumsden, Duncryne, Gartocharn. Granted 1929.

Inverness-shire County Federation of Scottish Women's Rural Institutes.—*Convener*, Miss E. C. Ryan, Blaracha, Roybridge; *Secretary*, Miss J. E. Shaw, Caberfeidh, Fort William. Granted 1929.

Kincardineshire Federation of Scottish Women's Rural Institutes.—*Convener*, Mrs C. G. Cox, Inchmarlo, Banchory; *Secretary*, Miss E. G. Simpson, Whinhurst, Fordoun. Granted 1929.

Orkney Federation of Scottish Women's Rural Institutes.—*Convener*, Miss N Clouston, Grameshall, Holm, Orkney; *Secretary*, Mrs E. J. Ritch, Myrtle Dene, Sandwick, Orkney. Granted 1929.

Perth and Kinross Federation of Scottish Women's Rural Institutes.—*Convener*, Mrs M. W. Fairweather, The Elms, Meigle; *Secretary*, Mrs I. Struthers, Schoolhouse, Meigle. Granted 1929.

Sutherland Federation of Scottish Women's Rural Institutes.—*Convener*, Miss J. Menzies, Blarich, Rogart; *Secretary*, Mrs A. V. Grant, Pulrossie Farm, Dornoch. Granted 1929.

CLASS III.

PLOUGHING, HOEING, AND LONG SERVICE.

1. PLOUGHING COMPETITIONS.

The Ploughing Medal will be given to the winner of the first Premium at Ploughing Competitions, provided a Report in the following terms on the official form is made to the Secretary, within one month of the Competition, by a Member of the Society. Forms of Report to be had on application.

FORM OF REPORT.

I, of , Member of the Highland and Agricultural Society, hereby certify that I attended the Ploughing Match of the Association at in the county of on the when ploughs competed ; of land were assigned to each, and hours were allowed for the execution of the work. The sum of £ was awarded as follows :—

[*Here enumerate the names and designations of successful Competitors.*]

RULES OF COMPETITION.

1. All Matches must be at the instance of a local Society or Ploughing Association, and no Match at the instance of an individual, or confined to the tenants of one estate, will be recognised.

2. The title of such Society or Association, together with the name and address of its Secretary, must be registered with the Secretary of the Highland and Agricultural Society, 3 George IV. Bridge, Edinburgh.

3. Not more than one Match in the same season can take place within the bounds of the same Society or Association.

4. All reports must be lodged within one month of the date of the Match, and certified by a Member of the Highland and Agricultural Society who was present at it.

5. A Member can report only one Match ; and a Ploughman cannot carry more than three Medals in the same season.

6. To warrant the grant of the Medal, there must have been 12 Ploughs in actual competition for the medal (*i.e. in the particular class for which the medal was offered*) and not less than £3 awarded in Prizes by the Local Society. The Medal to be given to the winner of the first prize.

7. The Local Society or Ploughing Association shall decide what class of ploughs shall compete for the Medal, and if so agreed, may offer it for competition to the class of plough most generally in use in the district.

8. The Local Society or Committee may, if they desire, arrange to let each Ploughman have one person to guide the horses for the first two and the last two furrows, but in no case shall Ploughmen receive any other assistance, and their work must not be set up or touched by others. Attention should be given to the firmness and sufficiency of the work below, more than to its neatness above the surface.

9. The Local Committee is required to fix the time to be allowed for ploughing the portion of land, and they are recommended that the time be at the rate of not more than fourteen hours per imperial acre on light land, and eighteen hours on heavy or stony land.

NOTE.—The attention of the Directors of the Society has frequently been drawn to certain irregularities which have occurred in connection with the conduct of Ploughing Matches and the completion of the Reports thereon. Complaints have been made (*a*) that the allotted amount of ground has not been ploughed, within the specified time, by the competitor awarded the first prize; (*b*) that the Report sent to this Society has been signed by a Member of the Society who was not present at the Match. It has to be pointed out that any infringement of the above Rules by a Local Society or Ploughing Association will render that Society or Association liable, at the discretion of the Board of Directors, to be debarred from receiving the Society's Medals in future.

2. HOEING COMPETITIONS.

The Minor Silver Medal will be given to the winner of the first Premium at Hoeing Competitions, provided a Report in the following terms on the official form is made to the Secretary within a month of the Competition by a Member of the Society. Forms of Report to be had on application.

RULES OF COMPETITION.

1. All Matches must be at the instance of a local Society or Hoeing Association, and no Match at the instance of an individual, or confined to the tenants of one estate, will be recognised.

2. The title of such Society or Association, together with the name and address of its Secretary, must be registered with the Secretary of the Highland and Agricultural Society, No. 3 George IV. Bridge, Edinburgh.

3. Not more than one Match in the same season can take place within the bounds of the same Society or Association.

4. All reports must be lodged within one month of the date of the Match, and certified by a Member of the Highland and Agricultural Society who was present at it.

5. A Member can only report one Match; and same Competitor cannot carry more than three Medals in the same season.

6. To warrant the grant of the Medal there must have been twelve hoes in Competition, and not less than Three Pounds awarded in prizes by the local Society. The Medal to be given to the winner of the first prize.

7. The time to be allowed to be decided by the local Committee, but in no case to exceed two hours for two drills of 100 yards each, the third drill being unoccupied, so that Competitors do not interfere with their neighbour's work.

8. Competitors must finish their work as they go along—no turning back or after-dressing allowed. Handpicking or transplanting shall be strictly prohibited.

9. A Committee shall be appointed to watch the work, and any Competitor found transplanting or otherwise not complying with the Rules shall have his number withdrawn, and be debarred from receiving any prize which might otherwise have been awarded to him.

NOTE.—Medals will be awarded under similar conditions for Competitions in hand-singling.

3. LONG-SERVICE CERTIFICATES AND MEDALS.

Certificates and Silver Medals for long service are awarded by the Society to farm servants, male or female, having an approved service in Scotland of not less than thirty years—(*a*) with one employer on the same or different holdings; (*b*) on the same holding with different employers. Special Certificates and Gold Medals are also awarded to farm servants, male or female, having an approved service in Scotland of not less than forty-five years, on similar conditions of employment as the above. These Certificates and Medals will be issued as applications are received.

Forms to be obtained from the Secretary.

War Service to count towards the time required for qualification where farm servants have returned to same service or employment with same farmer or his family.

Estate workers, such as Foresters, Carters, Grooms, &c., are not eligible. The award is strictly confined to **Farm** workers, such as Ploughmen, Shepherds, &c.

CLASS IV.

COTTAGES AND GARDENS.

The following Premiums are offered for Competition in the Parishes after-mentioned.

The Premiums are granted for two years.

1. PREMIUMS FOR BEST KEPT COTTAGES AND GARDENS.

1.	Best kept Cottage	£1	0	0
	Second best	0	10	0
2.	Best kept Cottage Garden	1	0	0
	Second best	0	10	0

RULES OF COMPETITION.

1. Competitions may take place in the different parishes for Cottages and Gardens, or for either separately.

2. The occupiers of Lodges at Gentlemen's Approach Gates and Gardeners' Houses are excluded, as well as others whom the Committee consider, from their position, not to be entitled to compete. The inspection must be completed by the 1st of October. In making the inspection, the Conveners may take the assistance of any competent judges.

3. It shall be left to the Committee of the District to fix two grades of Cottages, with maximum rents of £6 and £15 respectively, and to apply for £3 Grants in respect of each.

4. To warrant the award of full Premiums, there must not be fewer than

three competitors in each class. If there are less than three competitors in each class, only half Premium will be awarded.

5. A person who has gained the highest Premium cannot compete again.

6. If the Cottage is occupied by the proprietor, the roof must be in good repair; if the roof is thatch, it must be in good repair, though in the occupation of a tenant. The interior and external conveniences must be clean and orderly; the windows must be free of broken glass, clean, and affording the means of ventilation. Dunghills, and all other nuisances, must be removed from the front and gables. In awarding the Cottage Premiums, preference will be given to Competitors who, in addition to the above requisites, have displayed the greatest taste in ornamenting the exterior of their houses, and the ground in front and at the gables.

7. In estimating the claims for the Garden Premiums, the judges should have in view—the sufficiency and neatness of the fences and walks; the cleanness of the ground; the quality and choice of the crops; and the general productiveness of the garden.

8. Reports, stating the number of Competitors, the names of successful parties, and the nature of the exertions which have been made by them, must be lodged with the Secretary of the Highland and Agricultural Society *on or before the* 1*st November next.*

9. When a grant of Money has expired, the District cannot apply again for aid for four years.

Parishes desirous of these Premiums must lodge applications with the Secretary *on or before the* 1*st November next.*

(*No applications received for* 1929.)

2. MEDALS FOR COTTAGES AND GARDENS, OR GARDEN PRODUCE, POULTRY, AND BEE-KEEPING.

1. The Society will give annually one or two Minor Silver Medals to a limited number of local Associations or individuals, who establish Competitions and Premiums for Cottages, Gardens, Garden Produce, or Bee-Keeping. The Medals will be granted for two years.

2. The Medals may be offered in any two of the following sections, *but under no circumstances will the two Medals be given in one of the sections:—*

(1) Best kept Cottage or best kept Cottage and Garden. (One Medal only.)
(2) Best kept Garden. (One Medal only.)
(3) Best Collection of Garden Produce—Flowers excluded. (One Medal only.)
(4) Best Pen of Poultry.
(5) Honey. (One Medal only.)

3. The annual value of each Cottage, with the ground occupied in the parish by a Competitor, must not exceed £20. The occupiers of Lodges at Gentlemen's Approach Gates, and Gardeners in the employment of others, are not entitled to compete.

4. If Competition takes place for Garden Produce, such produce must be *bona fide* grown in the Exhibitor's Garden. He will not be allowed to make up a collection from any other Garden. The produce must consist of Vegetables, or Vegetables and Fruit (not Fruit alone). Flowers are excluded.

5. The Honey must be the produce of the Exhibitor's own Hives.

6. To warrant the award of a Medal, there must not be fewer than three Competitors.

7. Blank forms for Reports of Competitions will be furnished to the Secretaries of the different Districts. These must, in all details, be completed and lodged with the Secretary of the Highland and Agricultural Society as soon as possible after the Show, and in no case later than *1st November*, for the approval of the Directors, against whose decisions there shall be no appeal.

8. When a grant of Medals has expired, the District cannot apply again for aid for two years, and if no competition takes place in a District for two years the grant expires.

9. Applications for these Medals must be made *before 1st November next.*

(*No applications received for* 1929.)

FIRST EDITION.]

NOTE.—From 17th to 25th July all communications should be addressed to "The Secretary, Secretary's Office, Showyard, Alloa."

Address for Telegrams—"SOCIETY," EDINBURGH.
Telephone No.—EDINBURGH 23655.

HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND

GENERAL SHOW OF STOCK, IMPLEMENTS AND MACHINERY

ALLOA

23RD, 24TH, 25TH, AND 26TH JULY 1929.

LAST DAYS OF ENTRY.

IMPLEMENTS AND OTHER ARTICLES—Monday, 6th May.
CATTLE, HORSES, SHEEP, GOATS, AND PIGS—Thursday, 30th May.
(*Separate Form for* EACH *Entry.*)
POULTRY, DAIRY PRODUCE, WOOL, RURAL INDUSTRIES, AND HORSE-SHOEING—Thursday, 30th May.
RABBITS, HONEY, AND STOCK JUDGING COMPETITION—Thursday, 20th June.

No Entry at ordinary fees taken later than those which are received at the Society's Office, Edinburgh, by first post, or 10 o'clock, on Friday morning, 31st May. Late Entries for Cattle, Horses, Sheep, Goats, and Pigs taken on payment of 10s. additional for each entry (Poultry, Dairy Produce, Wool, Rural Industries, and Horse-shoeing at double fees) till 10 o'clock on Wednesday morning, 5th June, at the Society's Office, Edinburgh.

President of the Society.

THE EARL OF MAR AND KELLIE, K.T.

Chairman of the Board of Directors.

JAMES M'LAREN, CORNTON, BRIDGE OF ALLAN

Convener of the Local Committee.

J. E. KERR OF HARVIESTOUN, DOLLAR.

The District connected with the Show comprises the Counties of Clackmannan, Dumbarton, Perth (Stirling Show District), and Stirling.

REGULATIONS.

GENERAL CONDITIONS.

1. The Competition, except where otherwise stated in the Premium List, is open to Exhibitors from all parts of Great Britain, Northern Ireland, and Irish Free State.

Entries.

2. Every Lot must be intimated by a Certificate of Entry, lodged with the Secretary *not later than Monday, 6th May, for Implements and other Articles; Thursday, 30th May, for Stock, Poultry, Dairy Produce, Wool, Rural Industries, and Horse-shoeing; Thursday, 20th June, for Rabbits, Honey, and Stock-Judging Competition.* No Entry taken at ordinary fees later than those which are received at the Society's Office by first post, or 10 o'clock, on Friday morning, 31st May. Late Entries for Cattle, Horses, Sheep, Goats, and Pigs taken on payment of 10s. additional for each entry (Poultry, Dairy Produce, Wool, Rural Industries, and Horse-shoeing at double fees) till 10 o'clock Wednesday morning (5th June), at the Society's Office, Edinburgh. Printed forms of Entry will be issued on application to the Secretary, No. 3 George IV. Bridge, Edinburgh. Admission Orders for Exhibits and Attendants will be forwarded to Exhibitors, by post, previous to the Show.

Between 30th May and 20th June an Exhibitor who has made, in due time, an entry of Horses, Cattle, Sheep, Goats or Pigs, in a particular class, will be permitted to substitute for it an entry of another animal in the *same class* on payment of a fee of Five Shillings per entry.

Licences for moving Stock.

3. This Premium List is published and the Show will be held subject to any Orders that may be issued by the Ministry of Agriculture or Local Authorities. Any licences that may be required for the movement of Stock into or away from the Show must be obtained by Exhibitors. For these licences application should be made to the Chief Constable, Alloa.

Diseased Animals.

4. Animals suffering from any form of infectious or contagious disease—including ringworm or other form of infectious or contagious skin ailment—must not be brought to the Show. Those infringing this Rule shall be liable to a fine of 40s., and to have their Stock removed.

Horses suffering from cold.

The Steward of Horses shall have power to require that any animal showing symptoms of cold be examined by the Veterinary Surgeon, and, if found to be so suffering, the animal shall be isolated or excluded from the Showyard.

Fees to accompany Entries.

5. No Entry can be received or recorded unless it is accompanied by the necessary fees, and complies fully with the Regulations in the Premium List, the Secretary being empowered to return entries sent without the necessary fees.

Particulars of Entries.

6. The Schedule of Entry must be filled up so far as within the knowledge of the Exhibitor. The Society shall have power at any time to call upon an Exhibitor to furnish proof of the correctness of any statement in his entry.

Name of Breeder.

7. The name of the Breeder, if known, must be given, and if the Breeder is not known, a declaration to that effect, signed by the Exhibitor, must be made on the Entry Schedule, and no pedigree will be entered in the Catalogue when the Breeder is unknown.

No substitution of Animals.

8. All animals, except calves, foals, and lambs shown with their dams, must be entered in the classes applicable to them, and cannot be withdrawn after entry, or other animals be substituted in their place, except as provided in Rule 2 above.

One Class only.

9. For prizes given by the Society, no animal shall be allowed to compete in more than one class, or to compete in any class except that prescribed for animals of its pedigree and description; but this Rule does not apply to the Jumping and Harness Classes.

Ownership.

10. All stock exhibited at the Show, except where otherwise stated in the Premium List, must be, at the time of entry, the *bona fide* property of the Exhibitor in whose name it is entered.

Responsibility for Entries.

11. Exhibitors are alone responsible for the accuracy and eligibility of their entries. The recording of an entry or the admission of the exhibit to the Showyard will not relieve the Exhibitor of this responsibility. The entry-fee paid for an animal entered in a class for which it is not eligible is not returnable.

Cancelling of Entries.

12. In the event of the entries in any section of Cattle, Horses, Sheep, Goats, or Pigs being less in number than an average of three per class, or the number of different Exhibitors in the section being less than three, the classes for that section shall be cancelled automatically for the year, and the entry fees returned.

Society not liable.

13. The Society shall not be liable for any loss or damage which Stock, Poultry, Dairy Produce, &c., Implements, or other articles may sustain at the Show, or in transit.

Disqualified Exhibitors.

14. The Society reserve to themselves the right of refusing, cancelling, or prohibiting the exhibition of entries from any person who, after 1st January 1904, has been expelled from the membership of any Agricultural or Dairy Society, or who may have been prohibited, suspended, or disqualified from making entries or exhibiting at the Show or Shows of any Agricultural or Dairy Society or Breed Society in consequence of having attempted to obtain a Prize by giving a false Certificate, or by other unfair means, or who is under exclusion from any Breed Society for fraudulent practices.

Animal Disqualified.

15. When an animal has previously been disqualified by the decision of any Agricultural or Breed Society in the United Kingdom, such disqualification shall attach, if the Exhibitor, being aware of the disqualification, fail to state it, and the grounds thereof, in his entry, to enable the Directors to judge of its validity.

Tampering with Animals.

16. Any artificial contrivance or device of any description found on or proved to have been used on an animal, either for preventing the flow of milk or for any other improper purpose, will disqualify that animal from being awarded a Premium, and the Owner of said animal may be prohibited from again entering Stock for any of the Society's General Shows, for such a period as the Directors may see fit.

Blindfolding Horses.

17. Horses shall not be blindfolded while being shown in the Ring.

Rejecting Entries.

18. The Society further reserve to themselves the right of refusing any entries they may think fit to exclude, or to cancel any entry made, or to prohibit the exhibition of any entry.

Control of Exhibits.

19. Stock entered for competition, and actually in the Show, is subject to the control and under the orders of the Stewards, Secretary, and other Show officials of the Society, and such stock may not be withdrawn from competition without the consent of the Stewards or Secretary.

Improper Conduct.

20. Persons making insulting remarks to, or in any way unduly interfering with, the Judges, Stewards, or other officials while in the performance of their duties, and all Exhibitors or others in charge of stock while in the judging rings refusing to accept or display tickets, rosettes, &c., awarded by the Judges, and handed to them by the Stewards or other officials, or tearing up tickets, rosettes, &c., so awarded and handed to them, or indulging in any similar conduct, shall be considered guilty of misconduct, and shall be dealt with under these rules.

Subject to Orders.

21. All persons in charge of stock or other exhibits, and all persons admitted into the Showyard, shall be subject to the rules of the Society, and shall obey the orders of the Stewards, Secretary, and other officials of the Society. Exhibitors shall be answerable for the conduct of their servants or representatives.

Power of Officials.

The Stewards and other officials have power to enforce the regulations of the Society in their different departments.

Protests.

22. A protest having reference to exhibits at the Show may be lodged by any person having interest. Protests having reference to competitions which take place on the first day of the Show must be lodged

in writing with the Secretary at his Office in the Showyard not later than 9 A.M. on Wednesday, the second day of the Show, and parties must be in attendance at the Secretary's Office in the Showyard at 9.30 A.M. that day, when protests may be disposed of. Protests relating to competitions taking place after the first day of the Show must be lodged before 5 P.M. on the day on which the particular exhibition takes place. Each protest must state specifically the grounds of objection, and must be accompanied by a deposit of £2, 2s., which deposit may, if the objection be proved frivolous to the satisfaction of the Directors, be forfeited. Protests may be lodged at any time by Directors, and in this case no deposit will be required. Protests will be heard and determined by the Directors. Protests on veterinary grounds not received.

Penalties for Offences.

23. The violation of any one of the regulations, or disobedience of the orders of the Directors, Stewards, Secretary, or other officials of the Society, shall render the offending person liable to the forfeiture of all premiums awarded to him, or of such a portion as the Directors may ordain, and also liable to be expelled from the membership of the Society, and disqualified from again, or for a certain number of years, exhibiting at the Shows of the Society, or to have his case disposed of by fine or otherwise as the Directors may determine.

Final Authority.

24. The decision of the Directors shall, in every matter arising at or in connection with the Show, be final; and every person present at the Show, whether as a Judge, Exhibitor, Visitor, or otherwise, shall be deemed thereby to have agreed to refer the subject-matter of such decision to the final determination of the Directors to the exclusion of all Courts of Law.

Intimating Decisions.

25. All decisions under these rules may, along with the names and addresses of the persons against whom such decisions have been pronounced, be communicated by the Secretary of this Society to the Secretaries of all Agricultural or Dairy Societies holding open Shows in the United Kingdom, and to the Secretaries of all Breed Societies in the United Kingdom, and may be published in the Annual Reports of this Society, and in such newspapers or journals as the Directors may determine; and every Exhibitor competing at the Show, and every person present at the Show, whether as a Director, Member of Committee, Steward, Judge, Exhibitor, Visitor, or otherwise, shall be deemed thereby to have consented to such communication and publication.

Former Winners.

26. An animal to which a first Premium has been awarded, even if it should not qualify for that Premium, or an animal which subsequently becomes entitled to a first Premium, at a General Show of the Society, cannot again compete in the same class, notwithstanding any alteration in the heights stated for such class, but may be exhibited as Extra Stock.

Herd-books.

27. Shorthorn, Aberdeen-Angus, Galloway, Belted Galloway, Highland, British Friesian, and Red Poll cattle must be entered in the herd-books—Ayrshire Cattle in the herd-book or any Appendices thereto—or the Exhibitor must produce evidence that his animal is eligible to be entered therein.

Height of Horses.

28. All Horses or Ponies entered in classes in which a particular height is stated shall, before being judged, be measured with their shoes on. No subsequent measuring or alteration of shoes will be permitted.

Weight of Shoes.

29. Exhibitors of Hackney and Harness Horses shall be required to adhere to the Rules and Regulations of the Hackney Horse Society with regard to the weight of shoes on their exhibits, the Society's Veterinary Inspector being instructed to examine all the Hackneys and Harness Horses on the opening morning of the Show (this year on the Wednesday morning), and see that the following Rules as to the weight of shoes are attended to—viz., (*a*) For Hackneys exceeding 14 hands (except Hackney yearling colts and Hackney yearling fillies), no shoe (nails included) may exceed 2 lb. in weight; (*b*) for Ponies not exceeding 14 hands, Hackney

yearling colts and Hackney yearling fillies, no shoe (nails included) may exceed 1½lb. in weight.

Overfeeding.

30. Breeding Stock must not be shown in an improper state of fatness, and the Judges are requested not to award Premiums to overfed animals; and no Cattle or Sheep which after the age of twelve months have been exhibited as Fat Stock at any Show are eligible to compete in the Breeding Classes for the Society's Prizes.

Sires.

31. Aged Bulls and Stallions must have had produce, and, along with two-year-old Bulls, three-year-old Colts, and two-shear and aged Tups, have served within the twelve months immediately preceding the Show.

Calving Cows.

32. Except as may be otherwise specially provided in this Premium List, cows of all breeds (other than Ayrshire, British Friesian, and Red Poll) must have had a calf within nine months previous to the Show, and when exhibited must be in milk. Cows of the Ayrshire, British Friesian, and Red Poll breeds must have had a calf within fifteen months previous to the Show. *Animals of any age that have had a calf must be shown as Cows.*

In-calf Heifers.

33. Two-year-old Heifers of the Shorthorn, Aberdeen Angus, Galloway, Belted Galloway, British Friesian, and Red Poll breeds, two-year-old Yeld Ayrshire Heifers, and three-year-old Highland Heifers, must be in calf when exhibited, and the Premiums will be withheld till birth be certified, which must be within nine months after the Show.

Mares.

34. A Mare entered in a class for "Mares with foal at foot" must have produced a foal after 1st January of the year of the Show, must have regularly nursed her own or another foal, and must have the foal with her in the Show. If the mare's own foal is alive it must be the foal shown with the mare. In the case of a Mare that has not foaled before the Show, or whose foal has died, she shall, if not in milk, be eligible without further entry to compete among the Yeld Mares if a corresponding class for Yeld Mares be included in the Premium List. Draught Yeld Mares must produce a foal within twelve months from the first day of the Show. A Mare in a class for "Mares or Geldings" may or may not have had a foal in the year of the Show, but shall not have her foal exhibited with her, nor be in milk at the time of the Show.

Sows.

35. All Sows born in or before 1927 must have produced a litter of pigs in the year of the Show before the opening day. Sows born between 1st January and 1st September 1928 must either have produced a litter of pigs before the Show, or produce a litter within three months of the last day of the Show. Certificates of the date of farrowing must be supplied in every case.

Calves and Foals.

Calving, Farrowing, and Foaling Certificates.

36. With reference to Regulation 33, birth of a live or full-time calf must be certified; and in regard to Regulation 34, birth of at least a nine months' foal; or in the case of the death of the dam, a Veterinary Surgeon's certificate must be produced certifying that at the time of death the animal was so far advanced with calf or foal that if it had lived it would have produced a calf or foal within the periods stated in Rules 33 and 34. Certificates required by the foregoing Regulations will be issued after the Show, and must reach the office of the Secretary as follows: calving certificates within ten months, farrowing certificates within four months, and foaling certificates within thirteen months, of the last day of the Show. In default of this, the animal will be regarded as having failed to fulfil the Regulations, and the prize will therefore pass to the animal next in order of merit or be forfeited.

Special Prizes.

37. Except when otherwise provided, the awards of Special Prizes shall not be subject to the Regulations as to calving and foaling.

Payment of Prizes.

38. The Premiums awarded, except those withheld till birth of calf or foal or litter of pigs is certified, will be paid as soon after the Show as practicable, and, with the exception of the Tweeddale Gold Medal, Special Cups, and Medals, may be taken either in money or in plate.

Veterinary Examination of Stallions and Colts.

39. No Stallion or entire Colt, two years old or upwards, shall be allowed to compete for any of the Society's Prizes unless it has previously been licensed for stud purposes during the current year by the Department of Agriculture for Scotland, the Ministry of Agriculture and Fisheries, or the Irish Department of Agriculture.

Soundness of other Horses.

Accommodation for examination.

40. Judges are particularly requested to satisfy themselves, as far as possible, regarding the soundness of all Horses before awarding the Prizes, and to avoid giving Prizes to animals showing symptoms of hereditary disease. The Judges may consult the Society's Veterinary Surgeon if they deem it expedient. Private accommodation is provided for the examination of horses by the Veterinary Surgeon. No protests on veterinary grounds will be received.

Ewes.

41. Every Ewe must have given birth to and reared a lamb in the year of the Show; and Ewes of the Blackface and Cheviot breeds must be in milk, and have their lambs at foot.

Milking.

42. Animals in milk of the Dairy breeds must be milked dry at 6 o'clock on the evening previous to the opening of the Show in the presence of, and to the satisfaction of, the Steward of Cattle or a representative of the Society duly authorised by him. Animals arriving after six o'clock will be milked dry at the time of arrival.

Clipping.

43. Sheep must have been clipt bare after the first day of the November preceding the Show, no part of the animal to be clipt prior to that date—this Rule not to apply to Cheviot Sheep.

No Blackface Sheep shall be eligible which has not been clipt bare on or after the 1st April of the year of the Show.

Colouring, &c., of Sheep and Pigs.

44. The Steward of Sheep, who can call in assistance if so desired by him, shall have full power to disqualify any pen of Blackface, Cheviot, Border Leicester, and Half-bred Sheep which he considers unnaturally coloured, or when the fleece, face, or legs have been dealt with by the use of foreign substances.

The use of artificial whitening or powder on Large White and Middle White Pigs is prohibited, and the Judge is empowered to disqualify any pig so whitened or powdered.

Flock Books.

45. All Oxford Down and Suffolk Sheep shown must be entered or eligible for entry in the Oxford Down and Suffolk Flock Books respectively.

Poultry

46. In Poultry the Aged Birds must have been hatched previous to, and Cockerels and Pullets in, the year of the Show.

Railway Passes.

47. Railway Certificates for Stock, for both outward and return journeys, are issued to Exhibitors before the Show along with their Tickets of Admission (see page 86).

Admission of Stock.

48. Poultry and Stock will be admitted on Monday, the day before the opening of the Show, and, with the exception of Horses, must be in the Yard before 12 o'clock that night. Horses must be in before 8 o'clock on the morning of Tuesday, except those entered in classes for which other times for arrival are elsewhere stated in this List. Judging begins at 9.30 A.M. on Tuesday. Poultry and Stock will be exhibited on Tuesday, Wednesday, Thursday, and Friday. Any animals selected by the Stewards may be required to take part in the Stock Judging Competition on the Thursday. Stock may be admitted on the Saturday preceding the Show, but only by sending two days' prior notice to the Secretary's Office in the Showyard.

Parades.

49. Horses and Cattle must be paraded at the times stated in the Programme of the Show, and when required by the Stewards, and under their direction. Females of the Highland Cattle breed born in or after 1927 must be paraded; those born before 1927 will be paraded at the option of the exhibitor. In Parade, Horses must be ridden or led as provided in their respective classes. Prize and commended Cattle and Horses will receive two rosettes each, which must be attached to the head of the animal, one on each side. Attendants must be beside their animals *forty-five minutes before the hour of Parade*, and be ready to proceed to the ring

immediately on receiving the order of the Stewards. Infringement of this Rule, or failure of any attendant to obey the orders of the Society's officials, will render the Exhibitor liable to a fine of 20s. for each separate infringement or act of disobedience, and to the forfeiture of any or all of the Prizes awarded to him at this Show.

Responsibility of Exhibitors.

50. Exhibitors shall be answerable for all acts, whether committed by themselves, their servants, or others in charge of their Stock, and shall be responsible for the condition of their animals during the whole time they remain in the Showyard.

Moving from stalls.

51. No animal shall be taken out of its stall after 10 A.M. during the Show except by order of the Stewards, or with permission of the Secretary.

Washing Cattle.

52. Cattle shall not be taken out of their stalls to be washed after the Judging has commenced. Cattle must not be washed beside the Judging Rings. Those infringing this Rule shall be liable to a fine of 10s.

Soaping prohibited.

53. Soap or other adhesive material must not be used in dressing cattle or horses. Infringement of this Rule will render the animal upon which the material is used liable to be disqualified.

Loose-boxes and Stalls.

54. Loose-boxes will be provided for all horses; covered accommodation for other live stock. Stalls for nurse cows charged at ordinary rates. Boxes (floored) for attendants on Cattle, Horses, Sheep, Goats, and Pigs will be provided at a charge of 40s. for each box for members; 50s. for non-members. (See Rule 79.)

Floored Boxes and Stalls for Animals.

55. Exhibitors requiring the boxes, stalls, or pens for their animals to be floored must give instructions, stating the Catalogue No., to the Society's Showyard Erector, Mr John Reid, Showyard, ten days before the Show opens. (For charges, see Rule 78.)

Securing Cattle.

56. Bulls must be secured by nose-rings, with chains or ropes attached, or with strong halters and double ropes. All Cattle, other than Highland Cattle, must be tied in their stalls.

Concealing Animals.

57. During the time the Show is open to the public no rug shall be hung up so as to conceal any animal in a horse-box or stall, except with the special permission of the Steward of that department.

Fodder.

58. Five days' supply of straw, hay, grass, and tares will be provided free by the Society. Any additional fodder or other kinds of food required will be supplied at fixed prices in the Forage-yard. The Forage-yard will close at 1.30 P.M. on Friday, the last supply to be given to attendants then; and if any extra supply is required on account of stock remaining in the Yard after the close of the Show, notice must be given to the Forage Steward not later than 5 o'clock on Thursday. Any servant removing bedding from an adjoining stall will be fined in double the amount taken. Exhibitors may fetch their own cake or corn to the Yard, but not *grass, tares, hay, or straw.* Coops, food, and attendance for Poultry and Rabbits will be provided by the Society.

Feeding appliances.

59. Servants in charge of Stock must bring their own buckets or pails and a piece of rope or sheep-net to carry their forage. Mangers, and sheep and pig troughs, will be provided.

Sawdust.

60. Sawdust must not be used as bedding for Stock.

Water.

61. As the command of water in the Yard is limited, it is particularly requested that waste be avoided.

Lights and Smoking. Closing of Gates.

62. No lights allowed in the Yard at night, and Smoking is strictly prohibited within the Sheds. Those infringing this Rule shall be liable to a fine of 10s. The gates will be closed at midnight, and no person shall be allowed to enter or leave the Yard between that time and 5 A.M. without a special permit.

Removal of Stock.

63. Stock or Poultry cannot be removed from the Yard till 5 P.M. on Friday, the last day of the Show, except on certificate by the Veterinary Surgeon employed by the Directors, countersigned by the Steward of the department or the Secretary.

Withdrawal of horses overnight.

64. At the close of the Show on Tuesday, Wednesday, and Thursday, horses may be withdrawn for the night on a deposit of £5 for each animal, which shall be forfeited, along with any prize money it may have gained, if the animal is not brought back. They must return between 7 and 7.30 the following morning, and those not in before 8 shall forfeit 10s. Horse passes to be applied for at the Secretary's Office between 5 and 6 P.M. on Tuesday, and the deposit, unless forfeited in whole or in part, will be returned between 12.30 and 2.30 on Friday.

Order in removal.

65. When the Stock is leaving the Yard, no animal is to be moved till ordered by those in charge of clearing the Yard. Those transgressing this Rule shall be liable to a fine of 10s., and to be detained till all the other Stock is removed.

Penning and removing Poultry.

66. Poultry may be penned before the opening and removed at the close of the Show by Exhibitors themselves or their representatives. In the event of neither the Exhibitor nor an authorised representative of the Exhibitor being present to pen or remove Poultry, the birds will be penned and removed by men hired and paid by the Society, but this will be done on the understanding that the men are hired to do the work on behalf of Exhibitors, and solely at their risk, and that the Society will be in no way responsible for expenses incurred or loss of or injury to Exhibits by errors or accidents in penning, despatching, or conveying Exhibits.

Closing of Poultry Shed to Public.

67. On the opening day of the Show the Poultry Shed will be closed to the public during the Judging. On the last day of the Show the Poultry Shed will be closed to the public at 4 P.M.; at 5 P.M. Exhibitors or their representatives will be admitted to the Shed to remove Exhibits, provided the Exhibitor has, *not later than* 11 A.M. *on the last day of the Show*, given written notice to the Secretary to the effect that the Exhibitor or the Exhibitor's representative will attend at the Poultry Shed at 5 P.M. to remove the birds.

JUDGING STOCK AND POULTRY.

Opening Gates.

68. On Tuesday, the first day of the Show, no person will be admitted, except Servants in charge of Stock, till 8 A.M., when the Gates are opened to the public.

Judging.

69. The Judges will commence their inspection at 9.30 A.M. The spaces reserved for the Judging will be enclosed, and no encroachment shall be permitted.

Insufficient merit.

70. In no case shall a Premium be awarded unless the Judges deem the animals to have sufficient merit; and where only one or two lots are presented in a class, and the Judges consider them unworthy of the Premiums offered, it shall be in their power to award a lower prize.

Commendations.

71. In addition to the Premiums, the Judges may award **one** Very Highly Commended, **one** Highly Commended, and as many Commended tickets in each class as they consider justified by the number and merit of the entries.

Ayrshire, British Friesian, and Red Poll Cows and Heifers.

72. Ayrshire, British Friesian, and Red Poll Cows which have not calved before the Show, whether entered in a class for Cows in Milk or for Cows in Calf, shall be judged along with the Cows in Calf, and Ayrshire, British Friesian, and Red Poll Cows or Heifers which have calved before the Show—in whichever of the classes entered—shall be judged along with Cows in Milk.

Attending Members' duties.

73. Attending Members will accompany the Judge of each section. It will be the duty of Attending Members to bring the animals out to the Judges and to see that no obstruction is offered to them, and that the space reserved for them is not encroached upon; to ticket the prize animals; to send the Nos. of the prize animals to the Award Lectern near the Secretary's Office; to assist the Judges in completing their

return of awards; and should any difficulty arise, to communicate with the Stewards or Secretary.

74. It shall not be competent for any Exhibitor, nor for his Factor or Land-Steward, to act as a Judge or attending Member in any class in which he is competing.

DAIRY PRODUCE.

75. Dairy Produce will be received in the Showyard on Monday, the day before the opening of the Show, and till 8 A.M. on Tuesday, the first day of the Show. Judged at 9.30 A.M. on Tuesday. Exhibited Tuesday, Wednesday, Thursday, and Friday.

Placing and removing Dairy Produce.

76. Dairy Produce must have been made on the Exhibitor's farm in the year of the Show. No Exhibitor shall show more than **one** lot in each class. Exhibits of Dairy Produce may be placed before the opening and removed at the close of the Show by Exhibitors themselves or their representatives. In the event of neither the Exhibitor nor a person with written authority from the Exhibitor being present to place or remove exhibits, they will be placed and removed by men hired and paid by the Society, but this will be done on the understanding that the men are hired to do the work on behalf of Exhibitors, and solely at their risk, and that the Society will be in no way responsible for expenses incurred or loss of or injury to exhibits by errors or accidents in placing, despatching, or conveying exhibits. In the case of exhibits which are not removed by 5.30 P.M. on the closing day of the Show, the Society will hold itself at liberty to hand them over to the railway companies for despatch to the respective Exhibitors.

STALL RENT (INCLUDING ENTRY FEE).

Stall Rent.

77. The Stall Rents (which include Entry Fees) as stated opposite the individual Classes in this List, shall be paid by Exhibitors when making their Entries. The Secretary is instructed to return entries sent without the necessary fees.

FLOORED BOXES AND STALLS.

Floored Stalls for Animals.

78. Exhibitors desiring the boxes, stalls, or pens for their animals to be floored can have this done by giving instructions, stating the Catalogue No., ten days before the opening of the Show, to the Society's Showyard Erector (Mr John Reid, Showyard, Alloa), to whom the following charges for flooring have to be paid: Horses, 30s. each; Ponies, Cattle, Sheep, and Pigs, 20s. each.

ACCOMMODATION FOR ATTENDANTS.

Accommodation for Attendants.

79. Boxes for accommodation of attendants on Stock will, if desired, be provided beside the Stock at a charge of 40s. per box for members and 50s. for non-members. Attendants' boxes will be floored and lined with wood, with door. Applications for attendants' boxes must accompany entries of Stock, and (in the case of Cattle, Horses, and Pigs) Exhibitors must state the animal next to which the attendant's box is to be placed. Attendants' boxes cannot be guaranteed after the closing date.

IMPLEMENTS AND OTHER ARTICLES.

Admission of Goods. 80. Implements will be received in the Yard from Tuesday, 16th July, till 5 o'clock on the afternoon of Monday, 22nd July. Exhibited Tuesday, Wednesday, Thursday, and Friday. The Schedule of Entry must be filled up so far as within the knowledge of the Exhibitor, and prices must be stated.

Premiums. 81. No Money Prizes or Medals, except when specially offered, will be given by the Society for Implements of any kind.

Refusing Entries. 82. Agricultural Implements, and Implements and collections of articles not Agricultural, will be received for Exhibition, but the Secretary is entitled to refuse Entries from dealers in articles not deemed worthy of Exhibition.

Local Operatives. 83. In order to encourage exhibits of Agricultural Implements from operative Blacksmiths and Carpenters in the district of the Show, open space will be provided for these in some less prominent part of the Yard at a charge of 15s. for space 10 feet wide and 20 feet deep.

Articles not entered. 84. Every article to be exhibited must be entered on the Society's Entry Form. Any article not so entered that is taken to the Show is liable to be ordered out of, or removed from, the Showyard, or confiscated to the Society. Exhibitors infringing this rule are moreover liable to a fine of £1.

Selling by auction and noisy behaviour forbidden. 85. "Cheap-Jacks" are not admitted to the Showyard. The selling of goods by auction, shouting, and other behaviour calculated to annoy visitors or Exhibitors, are strictly forbidden. Exhibitors infringing this Regulation are liable to a fine of £1, and to have themselves and their goods ordered out of, or removed from, the Showyard, or to have their goods confiscated to the Society.

Placing Exhibits. Removing Exhibits. 86. The articles of each Exhibitor must all be placed in one stand, except Implements in motion, and must not on any account extend beyond the allotted space. No article shall be moved out of its stand, or the stand dismantled, till the termination of the Show, at 5 P.M. on Friday. Those infringing this Rule shall be liable to a fine of 10s.

Restoring Turf. 87. When the ground requires to be broken, the turf must be carefully lifted and laid aside, and the surface must be restored to the satisfaction of the Society, and at the expense of the Exhibitor. Failing this being done, the Society shall be at liberty to restore the ground and charge the cost to the Exhibitor.

Arranging Exhibits. Signs. 88. Exhibitors must arrange their own articles *within* the space allotted to them before 9 o'clock on Tuesday, the first day of the Show, and to the satisfaction of the Stewards in charge of the Implement Yard. Exhibitors are prohibited from sub-letting space allotted to them, and from displaying the name of any other firm on their Stand. All signs, except signs on gables, must face the front only. Nails must not be driven into the canvas.

Handbills. 89. Exhibitors are not allowed to distribute handbills anywhere in the Yard except at their own Stand; and they must not for this or any other purpose encroach upon the adjacent alleys or open spaces.

Sweeping Stands, &c. 90. Exhibitors are required to have their Stands and the portions of the alleys immediately adjoining them swept up before eight o'clock on each morning of the Show.

Fuel. 91. All Machines requiring steam or fire must be entered as such in the Certificate, and will be placed in the Motion Yard. *Coke only shall be used in all cases where fire is required.* Coal shall not be used at any time in the Showyard. Those infringing this Rule shall incur a penalty of £5.

Steam Engines. 92. No Steam Engine shall be driven in the Yard at a greater speed than 4 miles an hour. Traction Engines shall not be used in conveying Exhibits or other goods from one place to another in the Showyard.

Traction Engines.

93. Locomotive and Traction Engines and other Machines must not be moved from their places without permission of the Secretary or Stewards, and must not leave their stands till 6 P.M. on Friday.

Consigning Implements.

94. There must be attached to each Implement, when forwarded to the Show, a label bearing the Exhibitor's name, and that of the Implement, as well as the number of the Exhibitor's stand.

95. The carriage of all Implements must be prepaid.

Photographing in Showyard.

96. Photographing in the Showyard is not permitted, except by photographers having a Stand in the Showyard or holding a "Photographer's Ticket." The "Photographer's Ticket" may be had from the Secretary, price 20s. It admits the holder to the Show when open to the public, and entitles him to photograph in the Showyard, subject to arrangements made by the Stewards. It does not entitle the holder to sell photographs in the Showyard. No photographer shall be allowed in the ring during Parades, except with the sanction of the Steward of Parades.

Offices.

97. Covered Booths for Offices (9 feet by 9 feet), purely for business, not for exhibition of goods, can be had for £5 to Members and £7 to Non-Members.

Exhibitors' and Attendants' Tickets.

98. Each Exhibitor in the Implement Department who is not a Member of the Society will receive one free Ticket of Admission to the Showyard for himself or a member of his firm, and will receive, in addition, for the use of attendants employed by him at his Stand, two Tickets of Admission for each complete ten feet of shedding in the Motion Yard, and one Ticket for each complete ten feet of shedding in the other sections. No additional Free Tickets can be issued in any circumstances whatever. Additional Attendants' Tickets, not more than three for each ten feet of frontage, and in no case exceeding a maximum of twenty for one Exhibitor, may be obtained by application in writing by the Exhibitor at 5s. each. *No tickets will be issued without an Order.*

Tickets to be filled up and signed.

99. The Tickets of Admission for Exhibitors and Attendants referred to in the foregoing Regulation will (about fourteen days prior to the Show) be issued to the Exhibitors in blank, with the number of the Exhibitor's Stand. The name of the person for whom each ticket is intended must be written on it before it is used. Each person holding a Free Ticket of Admission must sign his or her name on the back thereof, and must also, when required, sign his or her name in the book at the Entrance Gate. Exhibitors' attendants are strictly cautioned not to lend or transfer their Tickets, which can be used only by the persons whose names they bear, and who must be *bona fide* acting for, or employed by, the Exhibitor. No Ticket is transferable. An Exhibitor is liable to a fine of £1 for each case of transfer or other improper use of a Ticket issued to himself or employee.

Tickets not Transferable.

Improper use of Tickets.

Admission of Supplies for Stand-holders.

100. The following are the arrangements for the admission of Supplies (Refreshments or other goods) for Stand-holders during the Show: Messenger on foot (with or without hand-barrow) with supplies, admitted by Special Ticket; price for one admission, 2s., for the four days, 6s. Motor or horse vehicle and driver, with supplies, admitted by Special Ticket; price for one admission, 2s., for the four days, 10s. These Special Tickets may be had from the Secretary. Vehicles, with supplies, admitted throughout the day on the first day of the Show; on the other three days they will not be admitted between the hours of 10 A.M. and 5 P.M. except by written permit from the Secretary.

Cycles.

101. The riding of Cycles in the Showyard is prohibited.

Accidents.

102. The Society will not be responsible for any accident that may occur from the machinery belonging to any Exhibitor; and it is a condition of entry that each Exhibitor shall hold the Society harmless, and indemnify it against any legal proceedings arising from any accident caused by his machinery.

Alcoholic Drinks.

103. The giving of Alcoholic Drinks to visitors at Stands in the Show is strictly prohibited. With a view to the enforcement of this rule

the Society reserves the right of unrestricted access, by its authorised representatives, to all Exhibitors' Stands during the Show.

Gas. 104. Exhibitors desiring the use of gas in the Showyard should apply to the Manager, Gas Works, Alloa, not later than Saturday, 15th June.

Space for Stands. 105. * Ground to be taken in spaces of 10 feet frontage by 20 feet deep, and in Motion Yard in spaces of 10 feet frontage by 50 feet deep. Exhibitors must take their space in one or other of the following Sections. Space is not let partly covered and partly open. *Exhibits not in Motion.* Exhibits not in motion may be excluded from the Motion Yard. The space in the Motion Yard being limited in extent, and intended mainly for exhibits in motion, not more than one-fifth of the space allotted to any one Exhibitor—and in no case more than 600 square feet—may be occupied in the Motion Yard by exhibits not in motion.

Maximum Space. 106. The maximum extent of space which any one Exhibitor may apply for shall be 60 feet of frontage in the Motion Yard, and 120 feet of frontage in the other Sections.

Allocation of space. 107. The Society reserves the right to allot to applicants for Stands either the whole or part of the space they ask for.

Fitting up of Stands. 108. Exhibitors requiring work executed in connection with the fitting up of stands allotted to them must employ the Society's Showyard Erector—Mr John Reid, 55 Blenheim Place, Aberdeen. The execution of orders received later than one week before the opening of the Show cannot be guaranteed.

109. **Rates for space, payable by Exhibitors when making their Entries :—**

		Members.	Non-Members.
1.	Open ground without Shedding, 20 ft. deep, per 10 ft.	£1 10 0	£2 5 0
2.	Special open ground, without Shedding, 20 ft. deep, per 10 ft.	2 10 0	3 5 0
3.	Ordinary Shedding, 20 ft. deep, 7 ft. to eave, per 10 ft.	1 10 0	2 5 0
4.	Special Shedding, 20 ft. deep, 7 ft. to eave, per 10 ft.	2 10 0	3 5 0
5.	Ordinary Shedding, 20 ft. deep, 7 ft. to eave, *close boarded at back*, per 10 ft.	3 0 0	4 0 0
6.	Special Shedding, 20 ft. deep, 7 ft. to eave, *close boarded at back*, per 10 ft.	4 10 0	5 10 0
7.	†Motion Yard, without Shedding, 50 ft. deep, per 10 ft.	3 0 0	4 15 0
8.	†Motion Yard, with Shedding (10 ft. open behind, 20 ft. covered, and 20 ft. *open in front*), 11 ft. to eave, per 10 ft.	4 10 0	6 0 0
9.	Special Section for Motor Vehicles, 30 ft. deep (20 ft. covered and 10 ft. *open in front*), 15 ft. to eave, per 10 ft.	4 10 0	5 10 0
10.	Covered Booths for offices, 9 ft. by 9 ft., each	5 0 0	7 0 0
11.	Press offices, 9 ft. by 9 ft., each £4.		

† See Rules 105 and 106.

Tents and marquees not allowed in the Showyard. All internal fittings to be executed by the Exhibitor at his own expense. The Society's Showyard Erector must be employed. See Rule 108.

NEW IMPLEMENTS.

1. An Exhibitor who desires to enter a "New Implement" for competition for the Society's Silver Medal must enter it separately as a "New Implement" at the commencement of the specification of his proposed exhibits; and he must define clearly, on a special form obtainable from the Secretary, the exact nature of the novelty which qualifies such implement to be entered for a Medal. Unless the "New Im-

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* Special provision may be made for Exhibitors of both machinery in motion and implements and machinery not in motion on application being made to the Secretary.

plement" be properly described in the specification, and particulars of its novelty are given at the time of making the entry, it will not be accepted.

2. For each entry of a "New Implement," sent with an application for space, made in accordance with Regulation 109, a non-returnable Entry Fee of £1 will be charged. Late entries of "New Implements" *only* will, however, be considered up to 10th June, provided that no increase of space beyond that originally allotted to the Exhibitor will be occasioned by such New Implements being shown at his stand.

3. In cases of sufficient merit, the Judges will recommend the award of the Society's Silver Medal to New Implements for agricultural or estate purposes, or to new improvements in such implements. Before making an award the Judges shall report to the Directors whether they consider a practical trial necessary.

4. The Society does not bind itself to try in the field every "New Implement" entered for a Silver Medal. Any Exhibitor who expresses a wish to do so can, with the sanction of the Steward of Implements, at his own expense take his New Implement out of the Showyard during the Show week and put it to work, and if within a reasonable distance, the Judges will, if they deem it necessary, inspect it at work and decide if it is worthy of a Silver Medal.

5. No Silver Medals will be awarded to, nor can any entry as New Implements be accepted of, machines of any class for which competitive trials have been announced by the Society as about to take place.

6. The Judges of New Implements will commence their inspection at 2.30 P.M. on Monday, 22nd July, and will take in rotation the stands of the exhibitors who have entered New Implements for the Society's Silver Medals. Each Exhibitor, or his representative, will be expected to be at the stand to explain the working of the Implement to the Judges. If the exhibit be not ready and in working order by the time the Judges make their inspection, it is liable to be struck off the list.

7. All publications by exhibitors of the award of the Society's Silver Medals must state the year of the award, and must specify the exact nature of the "New Implement," of the improvement, or of the attachment to an Implement, for which the Silver Medal has been awarded.

8. On the recommendation of the Judges, with the approval of the Directors, any New Implement of merit, which cannot be sufficiently tried, or which is capable of further development, may be entered and exhibited as a "New Implement" at the succeeding Show of the Society.

9. The Judges' decision, when duly accepted and recorded, will in all cases be final.

RESERVED SEATS (NUMBERED) IN GRAND STAND.

For Charges and Tickets, apply to Secretary up to opening day of Show. Thereafter tickets are sold only at the Booking-Office in Showyard behind Grand Stand.

ADMISSION OF THE PUBLIC.

The public will be admitted daily at 8 A.M. Judging begins on Tuesday at 9.30 A.M. The charges for admission to the Yard will be—**Tuesday,** from 8 A.M. till 5 P.M., 7s. 6d. **Wednesday,** from 8 A.M. till 5 P.M., 5s. **Thursday,** from 8 A.M. till 5 P.M., 2s. 6d.; from 5 P.M. till 8 P.M., 1s. **Friday,** from 8 A.M. till 5 P.M., 1s.

On **Thursday** and **Friday** children under twelve years of age admitted at 6d.

No Pass-out Checks given, and no re-admission without payment.

Season Tickets—12s. 6d. each—on application to Secretary. On the days of the Show, Season Tickets are sold only at the Entrance Gates.

ADMISSION OF MEMBERS AND EXHIBITORS.

On exhibiting their "*Member's Badge*," which is strictly not transferable, Members of the Society are admitted free to the Showyard. Badges will be sent to all Members residing in Great Britain, Northern Ireland, and Irish Free State, whose addresses are known, and on no account will duplicates be issued. **All Members not producing their badges must pay at the gates, and the admission money will not on any account be returned.** Badges must be signed by Members before being presented at the gate, and Members should continue to wear the badge during the whole time that they are in the Showyard.

Tickets of admission to the Showyard are sent to Exhibitors of Stock, Poultry, Dairy Produce, &c. (not Members), whose Entry Fees amount to not less than 12s. 6d.

For Exhibitors of Implements and their assistants tickets are issued as provided in the Regulations for Implements.

VARIOUS.

Exhibitors may display their own Placards *inside and in front of* their stands; with this exception, no Bills of any kind other than those of the Society are permitted on any of the Show erections. No newspapers or any other articles to be carried about the Yard for sale or display.

No Carriages or Equestrians admitted without special leave from the Directors, and then only for Invalids. Bath-chairs may be brought in.

Premium Lists, Regulations, and Certificates of Entry may be obtained by applying at the Secretary's Office, No. 3 George IV. Bridge, Edinburgh.

All Communications should be addressed to The Secretary of the Highland and Agricultural Society of Scotland, No. 3 *George IV. Bridge, Edinburgh. From* 17*th to* 25*th July, to the Secretary's Office, Showyard, Alloa.*

Address for Telegrams—"SOCIETY," EDINBURGH.
Telephone No.—EDINBURGH, 23655.

RAILWAY ARRANGEMENTS.

The Railway Companies will be furnished with a list of the Exhibitors of Stock and Implements, after the 2nd July. All applications for horse-boxes and trucks, and for information as to train arrangements, must be made by the Exhibitors themselves to the Stationmaster where their stock is to be trucked.

The arrangements made by the Railway Companies for the conveyance of Live Stock and Goods to and from the Show are **indicated** *below, but exhibitors are recommended to apply to the respective companies for* **full particulars**:—

1. Live Stock and Goods *to* the Show to be charged ordinary rates.
2. Live Stock and Goods *from* the Show, if sold, to be charged ordinary rates.
3. Live Stock from the Show, if unsold, and returned not later than the second day after the closing day of the Show (excluding Sunday), to be carried at half rates back to the Station whence the animals were sent, at owner's risk, on surrender of a Certificate from the Exhibitor, provided in accordance with the Railway Companies' requirements, and signed by the Secretary, to the effect that they are really unsold; failing surrender of such certificate, ordinary rates will be charged. The reduction to half rates is to be allowed only when the Stock are returned by the same route as that by which they were conveyed to the Show, but it shall be in the option of the Railway Company or Companies to return the Stock at half rates by a different route.
4. Live Poultry from the Show, *if unsold*, to be carried by Passenger Train at half rates back to the Station from which sent, at O.R., on surrender of an

agreed certificate signed by the Secretary of the Show to the effect that the Poultry are unsold and remain the property of the exhibitor. No certificate will be required for such traffic which is intended by the owner to be returned from the Show to the original sending Station by the same route as originally forwarded and the charges prepaid for both the outward and return journeys.

Poultry are only charged at the half rate when returned not later than the second day after the closing of the Show (Sunday being treated as a *dies non*).

5. Horse-boxes, or other Passenger Train vehicle, will not be provided for the carriage of Live Stock sent by Goods Train and invoiced at Goods Train rates. *For rates for Horse-boxes by Passenger and Special Trains, apply to the Railway Companies.*

6. Provender conveyed to and from Agricultural Shows with Live Stock will be charged at the applicable rates, subject to a free weight allowance, viz.—

Cattle	per animal,	56 lb.
Horses	,,	56 ,,
Sheep, goats, lambs, pigs, and calves	,,	28 ,,

7. The carriage of all Live Stock, Implements, and other articles going to the Show for exhibition must be PREPAID; and the carriage on all traffic *returned from the Show by Passenger Train Service must be PREPAID.*

The carriage charges on Live Stock conveyed in special vehicles by Passenger Train and intended to be returned to the original sending Station may also be prepaid for the return journey at the original sending Station if the owner so desires.

The Railway Charge on all exhibits which are conveyed by Passenger Train in the Guard's Van and intended to be returned from the Show direct to the original sending Station by the same route must be PREPAID, for both the outward and return journeys, at the original sending Station. The agreed form of address label for Poultry, Rabbits, Dairy Produce, Bee Appliances, Wool, and Rural Industries exhibits, which will be supplied through the Secretary of the Society, must be used in such cases.

8. Attendants in charge of Live Stock are conveyed free in the cases shown below, when certified by the owners to be *bona fide* in charge of such Live Stock:—

In Horse-Boxes.—Horses and Cattle: One man for each consignment, except where the consignment requires more than one vehicle, when one man to each vehicle may be sent free; but where two or three Horses or Cattle forming one consignment are sent in the same Horse-box and a man is required to travel with each animal, a man for each animal may be conveyed free, provided each animal is charged for separately.

In Horse-Boxes.—Small animals: One man to each vehicle.

In specially constructed Cattle Trucks.—Cattle or other animals: One man to each vehicle.

9. Agricultural Machines, Implements, and other Exhibits from the Show, *if unsold*, to be conveyed at half rates back to the Station whence they were sent, at Owner's risk, on production of a Certificate from the Exhibitor, provided and signed by the Show Secretary, to the effect that they are unsold; failing production of such Certificate, ordinary rates must be charged. The reduction to half rates is to be allowed only when the articles are returned by the same route as that by which they were conveyed to the Show, but it shall be in the option of the Railway Company or Companies to return the articles at half rates by a different route.

10. Unsold articles, previously carried by railway, transferred from one Show to another, or exhibited at several Shows consecutively, and returned to the Station from whence originally sent, will be conveyed at half rates at Owner's risk, on production of a Certificate from the Exhibitor (provided and signed by the Show Secretary) to the effect that they are unsold; failing production of such Certificate, ordinary rates will be charged. This applies only to Goods Trains.

11. The ordinary rates charged for carriage do not in any case include delivery *to*, or collection *from*, the Showground.

12. Agricultural Societies' Show Plant must be charged at Class 10 rates, station to station.

13. Tents, Canvas, and other articles, not for exhibition, to be charged the ordinary rates both going and returning.

14. Carriages and other Road Vehicles are only conveyed by Passenger Train when this can be conveniently done.

DELIVERY AND COLLECTION CHARGES.

Cartage Charges to be paid by the Exhibitor for the Delivery or Collection of traffic between the Railway Station at Alloa and the Showground of the Highland and Agricultural Society's Show at Alloa, on 23rd, 24th, 25th, and 26th July 1929.

General traffic	5s. 6d. per ton.
Minimum charge per consignment . .	3s.
Implements and Machinery (Agricultural), not exceeding 1 ton each . . .	6s. per ton.
Minimum charge per delivery . . .	3s.
Implements and Machinery (Agricultural) on their own wheels (specially hauled), not exceeding 1 ton	7s. 6d. each.
When hauled on their own wheels behind lorry, loaded or partly loaded with goods, actual weight at . . .	6s. per ton.
Single articles, exceeding 1 ton but not exceeding 3 tons	8s. per ton.
Single articles, exceeding 3 tons but not exceeding 5 tons	9s. 6d. per ton.
Single articles, exceeding 5 tons, by special arrangement only, but no less charge than	11s. 9d. per ton.
Loaded vans on their own wheels exceeding 1 ton but not exceeding 3 tons . .	8s. per ton.
Loaded vans on their own wheels exceeding 3 tons but not exceeding 5 tons . .	9s. 6d. per ton.
Loaded vans on their own wheels exceeding 5 tons, by special arrangement only, but no less charge than	11s. 9d. per ton.
Rustic Houses, by special arrangement only, but no less charge than . . .	14s. per load.
Carriages, on their own wheels . . .	6s. each.
Carriages, if carried on Company's lorries .	7s. 6d. per ton.
Minimum charge	7s. 6d.
Cattle, in floats	6s. per head.
Minimum charge for each float . .	8s. 6d.
Sheep, Goats, and Pigs, in floats . .	1s. 6d. per head.
Minimum charge for each float . .	8s. 6d.
Pigs, in crates	3s. 3d. per crate.
Minimum charge per load . . .	6s. 6d.
Ordinary Parcels by passenger train . .	6d. each.
Miscellaneous passenger train traffic, including packages of plants and flowers carried at O.R. rates S. to S. . .	1s. per cwt.
Minimum charge per consignment . .	1s. 6d.
*Poultry in crates or hampers . . .	9d. per crate or hamper.
*Rabbits in crates, hampers, &c. . .	
Cartage from point to point inside the Show Ground	3s. per hour.
Minimum charge	3s.

*** Poultry and Rabbit exhibits only** will be conveyed at the Society's expense from the Railway Station to the Showyard and back, but no exhibit subject to railway charges will be received by the Society. All other delivery charges must be paid by the Exhibitor.

THE PRESIDENT'S CHAMPION MEDALS

A Champion Medal is given by the Earl of Mar and Kellie, K.T., President of the Society, for the *best Animal* in each of the following sections :—

1. Shorthorn.
2. Aberdeen-Angus.
3. Galloway.
4. Belted Galloway.
5. Highland.
6. Ayrshire.
7. British-Friesian.
8. Red Poll.
9. Clydesdale Stallion or Colt.
10. Clydesdale Gelding.
11. Clydesdale Mare or Filly.
12. Shire.
13. Hunter.
14. Highland Pony.
15. Western Island Pony.
16. Shetland Pony.
17. Harness Horse.
18. Blackface Sheep.
19. Cheviot.
20. Border Leicester.
21. Half-bred.
22. Oxford-Down.
23. Suffolk.
24. Shropshire.
25. Dorset Horn.
26. Goat.
27. Large White Pig.
28. Middle White.
29. Large Black.
30. Large White Ulster.

NOTE.—*Animals entered as Extra Stock may compete for these Medals. Former Winners of the President's Medals are eligible. The Society shall have the right to photograph the Winners for publication in the 'Transactions.' At this Show no animal can be awarded more than one of these Medals.*

ENTRY FEES		*CLASS*	*CATTLE	*PREMIUMS*			
Members	*Non-Members*		SHORTHORN Judge : John Crombie *President's Medal for best Shorthorn*	*First* £	*Second* £	*Third* £	*Fourth* £
			[1] **The Duthie Perpetual Challenge Cup,** value £150, for best Animal in the Shorthorn Classes, "Extra Stock" being eligible to compete.				
25/-	45/-	1	**Bull** born before 1st December 1926 . .	15	10	5	3
25/-	45/-	2	**Bull** born on or after 1st December 1926 and before 1st April 1927	15	10	5	3
25/-	45/-	3	**Bull** born on or after 1st April 1927, and before 1st December 1927	12	8	4	2
25/-	45/-	4	**Bull** born on or after 1st December 1927, and before 1st April 1928	12	8	4	2
25/-	45/-	5	**Bull** born on or after 1st April 1928 . .	10	6	4	2
			[2] **The Emilio R. Casares, jun., "Junior Champion Cup,"** value £50, for best Shorthorn Bull in Class 5, calved on or after 1st April of the year preceding the Show, that has passed the tuberculin test.				
			[3] **Tweeddale Gold Medal** for best Shorthorn Bull				
			[4] **Best Shorthorn Bull in the Show,** entered or eligible for entry in Coates's Herd-Book—*£20.*				
			[4] **Silver Medal** to the Breeder of the winner of above Prize.				
			Breeder of best Bull of any age in the five Classes—The Silver Medal.				
25/-	45/-	6	**Cow** born before 1st December 1925, in Milk .	12	8	4	2
25/-	45/-	7	**Cow** born on or after 1st December 1925, and before 1st December 1926	10	5	3	2

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* See Rules 32 and 33.

[1] This Cup was gifted by the late Mr William Duthie, Collynie. The Cup may not be won on more than one occasion with the same animal. The animal winning the Cup must be certified free from hereditary disease. The winner of the Cup shall, before delivery thereof is made to him, give security to the Society that he shall surrender the same to the Society and deliver it at the Society's office when called upon to do so. The winner of the Cup on each occasion will receive a miniature replica as a memento of his winning the Cup.

[2] Given by Mr Emilio R. Casares, jun. This Cup will become the property of the Exhibitor who shall win it three times, not necessarily in succession.

[3] Annual Free Income from Fund of £500.

[4] Given by the Shorthorn Society.

ENTRY FEES		*CLASS*		*PREMIUMS*			
Members	*Non-Members*		CATTLE SHORTHORN—*continued*	*First*	*Second*	*Third*	*Fourth*
				£	£	£	£
25/-	45/-	8	**Cow** or **Heifer** born on or after 1st December 1926, and before 1st December 1927 . . .	10	5	3	2
25/-	45/-	9	**Heifer** born on or after 1st December 1927, and before 1st April 1928	10	5	3	2
25/-	45/-	10	**Heifer** born on or after 1st April 1928 . .	10	5	3	2
			[1] **Best Shorthorn Female in the Show,** entered or eligible for entry in Coates's Herd-Book—£20.				
			[1] **Silver Medal** to the Breeder of the winner of above Prize.				
			PRIZE MONEY BY SOCIETY . . £246				
			CONTRIBUTED PRIZES . . 40				
			ABERDEEN-ANGUS				
			Judge: C. F. Tulloch				
			President's Medal for best Aberdeen-Angus Animal				
			[2] **Silver Cup,** value £50, for best group of Aberdeen-Angus Cattle, consisting of one Bull and two Females, to become the property of an Exhibitor who shall win it three times, not necessarily in succession. "Extra Stock" eligible to compete.				
25/-	45/-	11	**Bull** born before 1st December 1926 . . .	15	10	5	3
25/-	45/-	12	**Bull** born on or after 1st December 1926, and before 1st December 1927	15	10	5	3
25/-	45/-	13	**Bull** born on or after 1st December 1927, and before 1st March 1928	12	8	4	2
25/-	45/-	14	**Bull** born on or after 1st March 1928 . .	10	6	4	2
			[3] **Ballindalloch Challenge Cup,** value £50, for the best Bull of any age in the four Classes.				
			Breeder of best Bull of any age in the above Classes—The Silver Medal.				
			Exhibitor of the Winner of the Ballindalloch Challenge Cup—The Silver Medal.				
			Breeder (if not also the Exhibitor) **of the Winner** of the Ballindalloch Challenge Cup—The Silver Medal.				
25/	45/-	15	**Cow** in Milk born before 1st December 1925 .	12	8	4	2
25/-	45/-	16	**Cow** in Milk born on or after 1st December 1925, and before 1st December 1926 . . .	12	8	4	2
25/-	45/-	17	**Cow** or **Heifer** born on or after 1st December 1926, and before 1st December 1927 . . .	10	5	3	2

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[1] Given by the Shorthorn Society.

[2] Given by Mr W. Gilchrist Macbeth of Dunira, Comrie. A Silver Medal will be given by the Society to the winner as a memento of his winning the Cup.

[3] "The Ballindalloch Challenge Cups," value £50 each, are offered for the best Bull of any age and best Cow of any age (Heifers excluded) in the Aberdeen-Angus Classes, the former presented by the late Sir George Macpherson Grant, Bart., and the latter by the late Sir John Macpherson Grant, Bart. Each Cup will become the property of the Exhibitor who shall win it five times, not necessarily in succession. The Exhibitor and Breeder of the successful animals each year will receive the Society's Silver Medal, with suitable inscription.

ENTRY FEES		CLASS	CATTLE	PREMIUMS			
Members	Non-Members		ABERDEEN-ANGUS—*continued*	First	Second	Third	Fourth
				£	£	£	£
25/-	45/-	18	**Heifer** born on or after 1st December 1927 and before 1st March 1928	10	5	3	2
25/-	45/-	19	**Heifer** born on or after 1st March 1928 . .	10	5	3	2
			[1] **Ballindalloch Challenge Cup,** value £50, for the best Cow of any age in Classes 15, 16, and 17.				
			Exhibitor of the Winner of the Ballindalloch Challenge Cup—The Silver Medal.				
			Breeder (if not also the Exhibitor) **of the Winner** of the Ballindalloch Challenge Cup—The Silver Medal.				
			[2] **Silver Cup,** value £50, for the best female animal of the Aberdeen-Angus breed, to become the property of an Exhibitor who shall win it four times, not necessarily in succession. "Extra Stock" eligible to compete.				
			[3] **Champion Gold Medal** for best Animal in the Breeding Classes, breeding animals shown as "Extra Stock" eligible to compete.				
			PRIZE MONEY BY SOCIETY . £226				
			GALLOWAY				
			Judge: James Clark				
			President's Medal for best Galloway				
			[4] **Dr Gillespie Memorial Challenge Trophy,** value £50, for best Galloway Animal in the Breeding Classes, breeding animals shown as "Extra Stock" being eligible to compete—see conditions below.				
25/-	45/-	20	**Bull** born before 1st December 1926. . .	15	10	5	3
25/-	45/-	21	**Bull** born on or after 1st December 1926 and before 1st December 1927	15	10	5	3
25/-	45/-	22	**Bull** born on or after 1st December 1927 . .	12	8	4	2
			Breeder of best Bull of any age in the three Classes—The Silver Medal.				
25/-	45/-	23	**Cow** of any age in Milk	12	8	4	2
25/-	45/-	24	**Cow** or **Heifer** born on or after 1st December 1926 and before 1st December 1927 . . .	10	5	3	2
25/-	45/-	25	**Heifer** born on or after 1st December 1927 . .	10	5	3	2
			PRIZE MONEY BY SOCIETY £153				

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[1] See note 3 on previous page.

[2] Presented by Mr Falconer L. Wallace of Candacraig and Balcairn, Strathdon. A Silver Medal will be given by the Society to the winner as a memento of his winning the Cup.

[3] Given by the Aberdeen-Angus Cattle Society.

[4] This Trophy is offered by the Galloway Cattle Society of Great Britain and Ireland (subject to the conditions of that Society) for the best Galloway animal registered in the Galloway Cattle Society's Herd-Book, entered in any of the breeding classes, at the Show or Shows at which it may be competed for. The winner of the Trophy shall, before delivery thereof is made to him, give security to the Galloway Cattle Society that he shall surrender the same to the Society and deliver it at the Society's office when called upon to do so. The winner on each occasion will receive the Galloway Cattle Society's Silver Medal as a memento of his winning the Trophy.

CATTLE

BELTED GALLOWAY

Judge: J. F. Sproat

President's Medal for best Belted Galloway Animal

ENTRY FEES		CLASS		PREMIUMS			
Members	*Non-Members*			*First*	*Second*	*Third*	*Fourth*
				£	£	£	£
			[1] **Knockbrex Challenge Cup**, value £50, for the best Belted Galloway Animal, "Extra Stock" being eligible to compete.				
25/-	45/-	26	**Bull** born before 1st December 1927 . .	10	5	3	2
25/-	45/-	27	**Bull** born on or after 1st December 1927 . .	10	5	3	2
25/-	45/-	28	**Cow or Heifer** born before 1st December 1926, in Milk or in Calf; if in calf, to calve on or before 1st December of the year of the Show . .	10	5	3	2
25/-	45/-	29	**Heifer** born on or after 1st December 1926 and before 1st December 1927	10	5	3	2
25/-	45/-	30	**Heifer** born on or after 1st December 1927 . .	10	5	3	2
			PRIZE MONEY BY SOCIETY . . £100				

HIGHLAND

Judge: John R. Campbell

President's Medal for best Highland Animal

ENTRY FEES		CLASS		PREMIUMS			
Members	*Non-Members*			*First*	*Second*	*Third*	*Fourth*
				£	£	£	£
25/-	45/-	31	**Bull** born before 1927	15	10	5	3
25/-	45/-	32	**Bull** born in 1927	15	10	5	3
25/-	45/-	33	**Bull** born in 1928	12	8	4	2
			[2] **Perpetual Victory Challenge Cup**, approximate value 50 Guineas, for the best Animal in the Male Classes, "Extra Stock" being eligible to compete.				
			Breeder of best Bull of any age in the three Classes—The Silver Medal.				
25/-	45/-	34	**Cow** of any age in Milk	12	8	4	2
25/-	45/-	35	**Cow** or **Heifer** born in 1926	10	5	3	2
25/-	45/-	36	**Heifer** born in 1927	10	5	3	2
25/-	45/-	37	**Heifer** born in 1928	10	5	3	2
			[2] **Perpetual Victory Challenge Cup**, approximate value 35 Guineas, for the best Animal in the Female Classes, "Extra Stock" being eligible to compete.				
			PRIZE MONEY BY SOCIETY . . £178				

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[1] This Cup was presented by Mrs Brown, Kirkbrex, Glasgow, for the best Belted Galloway animal registered in the Dun and Belted Galloway Cattle Breeders' Association Herd-Book, entered in any of the breeding classes, at the Show at which it may be competed for. The winner of the Trophy shall, before delivery thereof is made to him, give security to the Society that he shall surrender the same to the Society and deliver it at the Society's office when called upon to do so. The winner on each occasion will receive a Silver Medal as a memento of his winning the Trophy.

[2] Given by the Highland Cattle Society of Scotland.

ENTRY FEES		CLASS		PREMIUMS		
Members	Non-Members			First	Second	Third
				£	£	£

CATTLE

AYRSHIRE

Judge: John Young

1. To be eligible for competition in the Ayrshire Section Cows must have an authenticated Milk Yield, and younger Females (including Cows which have not completed their first lactation) and Bulls an authenticated Milking Pedigree, of a definite minimum amount.

2. The minimum amount referred to shall be as follows, calculated on the basis of a period between calvings of 52 weeks, and 3·8 per cent of butter fat:—

(a) Cows which have completed two or more lactations—700 gallons.

(b) Cows which have completed only one lactation—600 gallons.

(c) Younger Females and Bulls—an authenticated Milking Pedigree for dam and dam of sire on a similar basis.

3. In the case of Cows with two or more lactations the record lodged may be that for any year the Exhibitor may select.

4. In the case of a Cow which has no milking pedigree, and which has not completed her first lactation at date of entry, but is likely to calve again before date of Show, such Cow may be provisionally entered on her own milk yield produced within forty weeks after first calving, but when the Cow has calved again a further certificate in terms of the Rules must be obtained and produced before the Cow is allowed to enter the judging ring. The latter certificate is the standard of qualification, and failure to produce such will render the Cow liable to disqualification, and no entry money will be returned.

5. The evidence of Milk Yield and Milking Pedigree shall be in the form of a Certificate signed by the Secretary of the Scottish Milk Records Association. The Certificate, besides giving the actual yields, shall give these calculated on a uniform basis of a period of 52 weeks between calvings, and 3·8 per cent butter fat. This latter figure shall be communicated to the Judges before adjudicating.

In the case of Exhibitors founding on the Milk Yield of any animal, or animals, made in England, said Exhibitors must forward their Record Books, together with a Certificate from a competent analyst, stating that a butter fat test had been made at least once every 28 days during the period of lactation, and with details of said butter fat tests attached, to the Secretary of the Scottish Milk Records Association, who has undertaken to check the records and to certify same.

6. The authenticated Milk Yields and authenticated Milking Pedigrees shall appear in the Catalogue.

***N.B.*—Certificates above referred to must be obtained from Mr John Howie, 58 Alloway Street, Ayr, and lodged with Entries.**

President's Medal for best Ayrshire

[1] **Renfrewshire Perpetual Gold Challenge Cup,** value £250, for best Ayrshire Animal, "Extra Stock" being eligible to compete.

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[1] This Cup, along with an endowment of £500, was provided from money collected in Renfrewshire by the late Provost Muir M'Kean of Paisley, and is in commemoration of the Society's first Show in the county of Renfrew in 1913. This year the Cup is offered for the best Ayrshire Animal. The animal winning the Cup must be certified free from hereditary disease. The winner of the Cup shall, before delivery thereof is made to him, give security to the Society that he shall surrender the same to the Society and deliver it at the Society's office when called upon to do so. The winner of the Cup on each occasion will receive a miniature replica in silver as a memento of his winning the Cup.

CATTLE

AYRSHIRE—*continued*

ENTRY FEES				*PREMIUMS*		
Members	*Non-Members*	*CLASS*		*First*	*Second*	*Third*
				£	£	£
			[1] **Cowhill Champion Cup,** approximate value £30, for best Animal of the Ayrshire breed, entered with a number in the Herd-Book. The Cup to be won three times, not necessarily in succession, by the same person with different animals, before becoming the property of the winner.			
45/-	65/-	38	[2] **Cow** in Milk,* born before 1926 . . .	12	8	4
45/-	65/-	39	[2] **Cow** in Milk,* born on or after 1st January 1926 .	10	7	3
45/-	65/-	40	[2] **Cow** of any age in Calf,* and due to calve before 1st December of the year of the Show . .	10	7	3
			[3] **Special Prizes** for Cows from Grade "A" (Tuberculin Tested) or Certified Herds, drawn from Classes 38, 39, and 40. (*For Regulations, see footnote*)	7	5	2
25/-	45/-	41	**Heifer** born on or after 1st June 1926, in Calf and due to calve before 1st December of the year of the Show	10	7	3
25/-	45/-	42	**Heifer** born in 1927	10	5	3
25/-	45/-	43	**Heifer** born in 1928	8	5	3
			[4] **Special Prize of £10** for the best Female Animal of the Ayrshire breed entered with a number in the Ayrshire Cattle Herd-Book not later than 1st June 1929.			
25/-	45/-	44	**Bull** born before 1927	12	8	4
25/-	45/-	45	**Bull** born in 1927	10	7	3
25/-	45/-	46	**Bull** born in 1928	8	5	3
			Breeder of best Bull of any age in Classes 44, 45, and 46—The Silver Medal.			
			[4] **Special Prize of £10** for the best Male Animal of the Ayrshire breed entered with a number in the Ayrshire Cattle Herd-Book not later than 1st June 1929.			
			PRIZE MONEY BY SOCIETY . . £178			
			CONTRIBUTED PRIZES . . . 34			

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[1] Presented by the late Major Henry Keswick, Cowhill Tower, Dumfries, to the Ayrshire Cattle Herd-Book Society, to be competed for annually at the Shows of the Highland and Agricultural Society of Scotland.

[2] Cows in these Classes must have produced a calf within fifteen months prior to the Show

[3] Given by Messrs Brown & Polson, Ltd., Paisley, the Hon. T. G. P. Corbett, Mr Alexander Munro, and Mr W. P. Gilmour.

Regulations regarding Special Prizes for Cows from Grade "A" (Tuberculin Tested) or Certified Herds.—Each entry must be accompanied by a Veterinary Certificate from a County Veterinary Officer, certifying that the animal is from a licensed herd. The animals will be housed separately at the beginning or end of their respective sections, one vacant stall being left between them and the other animals. Each animal to be entered in the Catalogue in its Class, a star to be placed against the Catalogue number with a relative note that the animal referred to is housed at the beginning or end of the section.

[4] Given by the Ayrshire Cattle Herd-Book Society.

* See Rule 72.

CATTLE

BRITISH FRIESIAN

Judge : Robert Wallace

President's Medal for best British Friesian Animal

ENTRY FEES		CLASS		PREMIUMS			
Members	*Non-Members*			*First*	*Second*	*Third*	*Fourth*
				£	£	£	£
			[1] **The MacRobert Champion Silver Bell,** value 50 Guineas, for the best Animal in the British Friesian Classes, registered in or eligible for entry in the British Friesian Cattle Herd Book, "Extra Stock" being eligible to compete.				
45/-	65/-	47	[2] **Cow** in Milk,* born in or before 1925 . .	12	8	4	2
45/-	65/-	48	[2] **Cow** in Calf,* and not in Milk, born in or before 1925	10	5	3	2
45/-	65/-	49	[2] **Cow** in Milk, born in 1926 or 1927 . . .	10	5	3	2
			[3] **Special Prizes** for Cows from Grade "A" (Tuberculin Tested) or Certified Herds, drawn from Classes 47, 48, and 49. (*For Regulations, see footnote.*)	7	5	2	–
25/-	45/-	50	**Heifer** born in 1927	10	5	3	2
25/-	45/-	51	**Heifer** born in 1928, before 1st July . . .	10	5	3	2
25/-	45/-	52	**Heifer** born in 1928, on or after 1st July . .	10	5	3	2
			Champion Prize of £5 given by the British Friesian Cattle Society for the best Female exhibited.				
25/-	45/-	53	**Bull** born in or before 1926	12	8	4	2
25/-	45/-	54	**Bull** born in 1927	10	5	3	2
25/-	45/-	55	**Bull** born in 1928	10	5	3	2
			Breeder of Best Bull of any age in Classes 53, 54, and 55—The Silver Medal.				
			Champion Prize of £5 given by the British Friesian Cattle Society for the best Male exhibited.				
			PRIZE MONEY BY SOCIETY . . £138				
			[4] CONTRIBUTED PRIZES . . . 78				

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[1] Presented by Lady Rachel Workman MacRobert, Douneside, Tarland This Bell will become the property of the Exhibitor who shall win it three times, not necessarily in succession. The winner of the Bell on each occasion will receive a miniature replica in silver as a memento of his winning the Bell. The Breeder of the winning animal will also receive a replica, provided he or she is not also the Exhibitor.

[2] Cows in these Classes must have produced a calf within fifteen months prior to the Show.

[3] Given by Messrs Brown & Polson, Ltd., Paisley, the Hon. T. G. P. Corbett, Mr Alexander Munro, and Mr W. P. Gilmour.

Regulations regarding Special Prizes for Cows from Grade "A" (Tuberculin Tested) or Certified Herds.—Each entry must be accompanied by a Veterinary Certificate from a County Veterinary Officer, certifying that the animal is from a licensed herd. The animals will be housed separately at the beginning or end of their respective sections, one vacant stall being left between them and the other animals. Each animal to be entered in the Catalogue in its Class, a star to be placed against the Catalogue number with a relative note that the animal referred to is housed at the beginning or end of the section.

[4] £64 contributed by the British Friesian Cattle Society.

* See Rule 72.

CATTLE

RED POLL

Judge: Sam Woodiwiss

President's Medal for best Red Poll Animal

ENTRY FEES		CLASS		PREMIUMS		
Members	*Non-Members*			*First*	*Second*	*Third*
				£	£	£
			[1] **Kinmount Challenge Cup,** value about £50, for the best Female Animal in the Red Poll Classes registered in the Red Poll Cattle Society's Herd-Book, "Extra Stock" being eligible to compete.			
25/-	45/-	56	[2] **Cow** in Milk or in Calf, born before 1927 . .	10	5	3
			[3] **Special Prizes** for Cows from Grade "A" (Tuberculin Tested) or Certified Herds, drawn from Class 56. (*For Regulations, see footnote*) .	5	2	–
25/-	45/-	57	**Heifer** born in 1927	10	5	3
25/-	45/-	58	**Heifer** born in 1928	10	5	3
25/-	45/-	59	**Bull** born in or before 1927	10	5	3
25/-	45/-	60	**Bull** born in 1928	10	5	3

PRIZE MONEY BY SOCIETY . .	£70
[4] CONTRIBUTED PRIZES . . .	27

PRIZE MONEY BY SOCIETY .	£1294 0
CONTRIBUTED	179 0
CUPS, MEDALS, &c. . .	1006 15
Total Prizes for Cattle .	£2479 15

[See Note as to **EXTRA STOCK**, p. 112.]

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[1] This Cup was presented to the Society by Lieut.-Colonel Charles Brook of Kinmount, Annan. The winner of the Cup shall, before delivery thereof is made to him, give security to the Society that he shall surrender the same to the Society and deliver it at the Society's office when called upon to do so.

[2] Cows in these Classes must have produced a calf within fifteen months prior to the Show.

[3] Given by Messrs Brown & Polson, Ltd., Paisley, the Hon. T. G. P. Corbett, Mr Alexander Munro, and Mr W. P. Gilmour.

Regulations regarding Special Prizes for Cows from Grade "A" (Tuberculin Tested) or Certified Herds.—Each entry must be accompanied by a Veterinary Certificate from a County Veterinary Officer, certifying that the animal is from a licensed herd. The animals will be housed separately at the beginning or end of their respective sections, one vacant stall being left between them and the other animals. Each animal to be entered in the Catalogue in its Class, a star to be placed against the Catalogue number with a relative note that the animal referred to is housed at the beginning or end of the section.

[4] £20 contributed by Red Poll Cattle Society.

* HORSES

CLYDESDALE

STALLION AND COLT

Judge: Andrew Renwick

President's Medal for best Clydesdale Stallion or Colt

ENTRY FEES Members	ENTRY FEES Non-Members	CLASS		PREMIUMS First £	PREMIUMS Second £	PREMIUMS Third £	PREMIUMS Fourth £
			[1] **Paisley Perpetual Gold Challenge Cup,** value £300, for best Clydesdale Stallion or Colt, "Extra Stock" being eligible to compete.				
			[2] **Cawdor Challenge Cup,** value 50 Guineas, for best Clydesdale Stallion or Colt.				
55/-	75/-	61	**Stallion** born before 1926	20	15	10	4
55/-	75/-	62	**Entire Colt** born in 1926	20	15	10	4
55/-	75/-	63	**Entire Colt** born in 1927	20	15	10	4
40/-	60/-	64	**Entire Colt** born in 1928	15	10	6	4
			Breeder of best Male Animal of any age in the above Classes—The Silver Medal.				
			[3] **William Taylor Memorial Prize of £10 and Certificate** to the breeder of the best Clydesdale Colt entered in Classes 63 and 64.				
			PRIZE MONEY BY SOCIETY . . . £182				
			CONTRIBUTED PRIZES 10				

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* **For prizes given by the Society, no animal is allowed to compete in more than one Class, except that horses entered in other Classes may also compete in the Jumping and Harness Classes.**

[1] This Cup, along with an endowment of £600, was provided from money collected in Paisley by the late Provost Muir M'Kean, and is in commemoration of the Society's first Show at Paisley in 1913. This year the Cup is offered for the best Clydesdale Stallion or Colt. The animal winning the Cup must be certified free from hereditary disease. The winner of the Cup shall, before delivery thereof is made to him, give security to the Society that he shall surrender the same to the Society and deliver it at the Society's office when called upon to do so. The winner of the Cup on each occasion will receive a miniature replica in silver as a memento of his winning the Cup.

[2] This Cup is offered by the Clydesdale Horse Society of Great Britain and Ireland (subject to the conditions of that Society) for the best Clydesdale Stallion or Colt registered in the Clydesdale Stud-Book, entered in any of the Clydesdale Horse Classes, at the Show at which it may be competed for. No Stallion rising five years old or upwards will be allowed to compete for this Cup unless proof be furnished to satisfy a Committee, appointed for this purpose by the Council of the Clydesdale Horse Society, that he has during the preceding season left at least 35 per cent of the mares served by him in foal. The Cup must be won four times by an Exhibitor with different animals (but not necessarily in consecutive years) before it becomes his absolute property. The animal winning this Cup must be certified free from hereditary disease. The winner of the Cup, other than the absolute winner, shall, before delivery thereof is made to him, give security to the Clydesdale Horse Society that he shall surrender the same to the Society and deliver it at the Society's office when called upon to do so. Until the Cup be won outright, the winner on each occasion will receive the Clydesdale Horse Society's Silver Medal as a memento of his winning the Cup.

[3] Given by William Taylor Memorial Committee.

Stallions and Colts, 2 years old and upwards, must be licensed for stud purposes. See Rule 39.

HORSES

CLYDESDALE—*continued*

GELDING

Got by a Registered Clydesdale Stallion

Judge: David Allison

President's Medal for best Clydesdale Gelding

ENTRY FEES Members	ENTRY FEES Non-Members	CLASS		PREMIUMS First £	Second £	Third £	Fourth £
40/-	60/-	65	**Gelding** born before 1926	12	8	4	2
40/-	60/-	66	**Gelding** born in 1926	12	8	4	2
40/-	60/-	67	**Gelding** born in 1927	12	8	4	2

PRIZE MONEY BY SOCIETY £78

MARE AND FILLY

Judge: Peter Dewar

President's Medal for best Clydesdale Mare or Filly

[1] **Cawdor Challenge Cup**, value 50 Guineas, for best Clydesdale Mare or Filly.

ENTRY FEES Members	ENTRY FEES Non-Members	CLASS		PREMIUMS First £	Second £	Third £	Fourth £
55/-	75/-	68	**Mare** of any age, with **Foal** at foot	20	12	7	4
40/-	60/-	69	**Yeld Mare** born before 1926	15	9	6	4
40/-	60/-	70	**Yeld Mare or Filly** born in 1926	15	9	6	4
40/-	60/-	71	**Filly** born in 1927	15	9	6	4
40/-	60/-	72	**Filly** born in 1928	15	9	6	4

PRIZE MONEY BY SOCIETY . . £179

Total Prize Money for Clydesdale Horses, £449

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[1] This Cup is offered by the Clydesdale Horse Society of Great Britain and Ireland (subject to the conditions of that Society) for the best Clydesdale Mare or Filly registered in the Clydesdale Stud-Book, entered in any of the Clydesdale Horse Classes, at the Show at which it may be competed for. The Cup must be won four times by an Exhibitor with different animals (but not necessarily in consecutive years) before it becomes his absolute property. The animal winning this Cup must be certified free from hereditary disease. The winner of the Cup, other than the absolute winner, shall, before delivery thereof is made to him, give security to the Clydesdale Horse Society that he shall surrender the same to the Society and deliver it at the Society's office when called upon to do so. Until the Cup be won outright, the winner on each occasion will receive the Clydesdale Horse Society's Silver Medal as a memento of his winning the Cup.

Stallions and Colts, 2 years old and upwards, must be licensed for stud purposes. See Rule 39.

HORSES

SHIRE

Judge: Thomas Forshaw

(To be judged at 2.30 P.M. on Tuesday, 23rd July)

President's Medal for best Shire Animal in Classes 73 and 75

ENTRY FEES		CLASS		PREMIUMS			
Members	*Non-Members*			*First* £	*Second* £	*Third* £	*Fourth.* £
55/-	75/-	73	**Stallion or Colt** born before 1928 . . .	20	15	10	4
40/-	60/-	74	**Gelding,** by a registered Shire Stallion, born before 1927	12	8	4	2
40/-	60/-	75	**Yeld Mare or Filly** born before 1928 . .	15	9	6	4

[*Note.*—Stallions and Mares must be registered, or tendered for registration, in the Shire Horse Stud-Book before date of Show.]

Prize Money by Society £65 8

[1] Contributed Prizes . . 43 12

HUNTER

Judge: G. H. J. Dove

(To be judged at 2.30 P.M. on Tuesday, 23rd July)

President's Medal for best Hunter

ENTRY FEES		CLASS		PREMIUMS			
Members	*Non-Members*			*First* £	*Second* £	*Third* £	*Fourth.* £
55/-	75/-	76	**Hunter Brood Mare,** with Foal at foot . .	15	7	3	–
40/-	60/-	77	**Yeld Mare, Filly, or Gelding** born in 1926—*in hand*	10	5	3	–
40/-	60/-	78	**Yeld Mare, Filly, or Gelding** born in 1927—*in hand*	10	5	3	–
40/-	60/-	79	**Filly, Colt, or Gelding** born in 1928—*in hand* .	10	5	3	–
			[2] **Best Hunter Filly,** not exceeding three years old, registered with a number in the Hunter Stud-Book, or the entry tendered within a month of the award—Champion Gold Medal.				
40/-	60/-	80	**Mare or Gelding,** born before 1925, to carry 13 stone and over—*in saddle* . . .	15	10	5	–
40/-	60/-	81	**Mare or Gelding,** born before 1925, to carry under 13 stone—*in saddle*	15	10	5	–
40/-	60/-	82	**Mare or Gelding,** born in 1925—*in saddle* . .	15	10	5	–

Prize Money by Society . . £169

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[1] Given by the Shire Horse Society.

[2] Given by the Hunters' Improvement and National Light Horse Breeding Society.

Stallions and Colts, 2 years old and upwards, must be licensed for stud purposes. See Rule 39.

HORSES

[1] HIGHLAND PONY

Judge: Thomas Wooley

President's Medal for best Highland Pony

(*To be judged at* 1.30 P.M. *on Tuesday, 23rd July*)

ENTRY FEES		CLASS		PREMIUMS		
Members	*Non-Members*			*First*	*Second*	*Third*
				£	£	£
40/-	60/-	83	**Stallion** born before 1927, not exceeding 14.2 hands	8	4	2
40/-	60/-	84	**Mare** born before 1927, not exceeding 14.2 hands, yeld or with Foal at foot	8	4	2
40/-	60/-	85	**Entire Colt** born on or after 1st January 1927	6	4	2
40/-	60/-	86	**Filly** born on or after 1st January 1927	6	4	2
			[2] **Special Prize of £10** for the best Highland Stallion, Mare, Colt, or Filly, entered or accepted for entry in the Highland Section of the National Pony Stud-Book, "Extra Stock" being eligible to compete. Competition to be strictly confined to animals passed sound and free from hereditary disease.			

Prize Money by Society . . £12
Contributed Prizes . . 50

WESTERN ISLAND PONY

Judge: Miss A. Stirling Maxwell

(*To be judged at* 1.30 P.M. *on Tuesday, 23rd July*)

President's Medal for best Western Island Pony

ENTRY FEES		CLASS		PREMIUMS		
Members	*Non-Members*			*First*	*Second*	*Third*
40/-	60/-	87	**Stallion** born before 1927, not exceeding 14 hands	8	4	2
40/-	60/-	88	**Mare** born before 1927, not exceeding 14 hands, yeld or with Foal at foot	8	4	2
40/-	60/-	89	**Entire Colt** born on or after 1st January 1927	6	4	2
40/-	60/-	90	**Filly** born on or after 1st January 1927	6	4	2
			[2] **Special Prize of £10** for the best Western Island Stallion, Mare, Colt, or Filly, entered or accepted for entry in the Highland Section of the National Pony Stud-Book, "Extra Stock" being eligible to compete. Competition to be strictly confined to animals passed sound and free from hereditary disease.			

Prize Money by Society . . £52
Contributed Prizes . . . 10

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[1] The Department of Agriculture for Scotland gives £40 towards prizes for Highland Ponies.

[2] Given by the National Pony Society and the Highland Pony Society.

Stallions and Colts, 2 years old and upwards, must be licensed for stud purposes. See Rule 39.

HORSES

SHETLAND PONY

Judge : Graham Clark

(*To be judged at* 1.30 P.M. *on Tuesday*, 23*rd July*)

(*All to be shown in hand*)

President's Medal for best Shetland Pony

ENTRY FEES		*CLASS*		*PREMIUMS*			
Members	*Non-Members*			*First*	*Second*	*Third*	*Fourth*
				£	£	£	£
35/-	55/-	91	**Stallion**, not exceeding 10½ hands, born before 1926	8	5	3	2
35/-	55/-	92	**Entire Colt**, not exceeding 10½ hands, born in 1926 or 1927	8	5	3	2
35/-	55/-	93	**Mare**, not exceeding 10½ hands, with Foal at foot	8	5	3	2
35/-	55/-	94	**Yeld Mare**, not exceeding 10½ hands	8	5	3	2
35/-	55/-	95	**Filly**, not exceeding 10½ hands, born in 1926 or 1927	8	5	3	2
			[1] **Silver Cup** for best Shetland Pony of any age, drawn from ordinary Classes—*and shown in saddle.* (*To be judged by Hunter Judge.*)				
			[2] **Best Group of Shetland Ponies**, drawn from the ordinary Classes, consisting of one male and two females; one female to be a mare with foal at foot, but the foal not to be reckoned as one of the Group	10	–	–	–
			[3] **Silver Medal** for the best Shetland Pony of the sex opposite to that of the winner of the President's Medal, entered or eligible for entry in the Shetland Pony Stud-Book.				

PRIZE MONEY BY SOCIETY	£90
CONTRIBUTED PRIZES	10

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[1] Given by a past President of the Shetland Pony Stud-Book Society. If less than three competitors the Cup will not be awarded.

[2] Given by "Four Lovers of the Breed," per Mr W. Mungall of Transy.

[3] Given by the Shetland Pony Stud-Book Society.

Stallions and Colts, 2 years old and upwards, must be licensed for stud purposes. See Rule 39.

ENTRY FEES		*CLASS*		*PREMIUMS*			
Members	*Non-Members*			*First*	*Second*	*Third*	*Fourth*
				£	£	£	£
			HORSES				
			RIDING PONY				
			(*To be judged by the Hunter Judge at* 4 P.M. *on Wednesday*, 24*th July*)				
5/-	5/-	96	**Mare or Gelding,** any age, over 12 hands and not exceeding 14 hands, in saddle, to be ridden by boy or girl 10 years and under 14 years of age on first day of Show	5	3	2	–
5/-	5/-	97	**Mare or Gelding,** any age, not exceeding 12 hands, in saddle, to be ridden by boy or girl under 10 years of age on first day of Show . .	5	3	2	–
			PRIZE MONEY BY SOCIETY . . £20				
			[Ponies in Classes 96 and 97 must be in the Showyard not later than 3 P.M. on Wednesday, and may leave immediately after the Afternoon Parade on Thursday. **Boxes are not provided for these ponies.**]				
			[1]**HORSE IN HARNESS**				
			Judge: Walter Briggs				
			(*To be judged at* 11 A.M. *on Wednesday*, 24*th July*)				
			[2] *President's Medal for best animal in the Classes for Horses in Harness*				
			[3]**The "Glasgow" Champion Challenge Cup,** value £50, for best Horse in Single Harness; competition limited to First, Second, and Third Prize-Winners in Harness Classes, and animals entered as "Extra Stock."				
40/-	60/-	98	**Yeld Mare, Filly, or Gelding,** any age, in Harness, exceeding 15 hands, to be driven in the ring .	15	10	5	–

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[1] Animals entered in other Classes may be entered in the Harness Classes at an additional fee of 5s. if they are eligible.

[2] *An animal that has won a President's Medal in another section in this Show shall not be eligible to compete for the Medal in this section.*

[3] The "Glasgow" Challenge Cup is offered for the best Horse in Single Harness, and will become the property of the Exhibitor who shall win it three times, not necessarily in succession. The winner of the Cup shall, before delivery thereof is made to him, give security to the Society that he shall surrender the same to the Society and deliver it at the Society's office when called upon to do so. The winner on each occasion will receive the Society's Silver Medal as a memento of his winning the Cup.

Shed accommodation for machines for Driving Competitions—Members, 10s.; Non-Members, 20s.

HORSES

HORSE IN HARNESS—*continued*

ENTRY FEES *Members*	*ENTRY FEES* *Non-Members*	*CLASS*		*PREMIUMS* *First* £	*PREMIUMS* *Second* £	*PREMIUMS* *Third* £
40/-	60/-	99	**Yeld Mare, Filly, or Gelding,** any age, in Harness, over 14 hands and not exceeding 15 hands, to be driven in the ring	15	10	5
40/-	60/-	100	**Yeld Mare, Filly, or Gelding,** any age, not exceeding 14 hands, to be driven in the ring .	10	5	3

Prize Money by Society . . £78

[Horses in Harness Classes must be in the Showyard not later than Tuesday evening, judged on Wednesday, and may leave the Showyard on Thursday immediately after the Afternoon Parade.]

DRAUGHT GELDING IN HARNESS

Judge : David Allison

(*To be judged at* 11 A.M. *on Friday, 26th July*)

5/-	10/-	101	**Draught Gelding,** any age, in Harness, shown in Cart or Lorry (and driven by single driver), it being a condition that the Horse must have been regularly worked for a period of twelve weeks prior to the first day of the Show. To be exhibited on Friday, 26th July. Only the Prize-Winners to take part, as required, in the Parade on Friday. The Class will be cancelled if a minimum number of *seven* entries is not received. Prizes—£10, £5, £3, £2.

Total Prize Money . . £20

Prize Money by Society .	. £945	8
Contributed . . .	. 123	12
Cups, Medals, &c. . . .	. 475	0
Total Prizes for Horses	. **£1544**	**0**

[See Note as to **EXTRA STOCK**, p. 112.]

JUMPING COMPETITIONS

SPECIAL REGULATIONS

(See also the Regulations on pages 74 to 81)

1. Jumping Competitions will take place on the afternoons of Wednesday, Thursday, and Friday, 24th, 25th, and 26th July, and on the evening of Thursday, 25th July.
2. *Entries* for each afternoon Competition will close at the Secretary's Office in the Showyard at 5 P.M. on the preceding day. Entries for Evening Jumping may be received until 5 P.M. on the evening of the Competition.
3. *Entry Fees.*—Wednesday and Thursday afternoons, £1; Friday, 10s. Evening Jumping, 10s.
4. *Accommodation* for jumping horses will be provided as follows: Covered shed in which to stand during the day free of charge; or, on application to the Secretary not less than ten days before the opening of the Show, stalls or loose-boxes will be provided at a charge (in addition to the Entry Fee) of £1 for a stall and £2 for a loose-box, which must be paid along with the Entry Fee at the time of application.
5. Horses entered for jumping only need not enter the Showyard till 12 noon on the day of Competition, and may leave the Showyard at the close of the jumping.
6. *The Jumps* may consist of Single Hurdle, Gate, Double Hurdle, Wall, and Water Jump, power being reserved by the Society to alter these, as well as the Handicaps, as may be thought desirable.

ENTRY FEE	*CLASS*		*First* £	*Second* £	*Third* £	*Fourth* £	*Fifth* £
		WEDNESDAY.					
		AFTERNOON.					
20/-	1	**Horse or Pony,** any height	20	15	10	5	3
		THURSDAY.					
		AFTERNOON.					
20/-	2	**Horse or Pony,** any height, Handicap, hurdles and gate being raised 8 inches for the winner of the first prize, and 4 inches for the winner of the second prize in Class 1	20	15	10	5	3
		EVENING.					
10/-	3	**Horse or Pony,** any height	10	8	5	3	2
		FRIDAY.					
10/-	4	**Horse or Pony,** any height, Handicap, hurdles and gate being raised 8 inches for the winner of the first prize, and 4 inches for the winner of the second prize in either of Classes 1 or 2—4 inches extra for the winner of the two first prizes in Classes 1 and 2	15	10	5	3	2
		Champion Prize for most points in Prizes with *one horse* in Classes 1, 2, and 4—First Prize to count five points; Second Prize, four points; Third Prize, three points; Fourth Prize, two points; and Fifth Prize, one point—the money to be evenly divided in the event of a tie . .	10	-	-	-	-
		Total Prize Money for Jumping, £179					

Special Entry Forms for above Competitions to be had on application.

SHEEP

*BLACKFACE

Judges—
Males, excluding Tup Lambs, James Mitchell, jun.
Females and Tup Lambs, Donald M'Dougall

President's Medal for best Blackface Sheep

[1] **Fife and Kinross Perpetual Gold Challenge Cup,** value £200, for best Blackface Sheep, "Extra Stock" being eligible to compete.

ENTRY FEES *Members*	*ENTRY FEES* *Non-Members*	*CLASS*		*PREMIUMS* *First* £	*PREMIUMS* *Second* £	*PREMIUMS* *Third* £	*PREMIUMS* *Fourth* £
15/-	25/-	102	**Tup** above one shear	12	8	4	2
15/-	25/-	103	**Shearling Tup**	12	8	4	2
15/-	25/-	104	**Shearling Tup, which shall have been entirely out-wintered, and not housed or house-fed at any time, and not clipped** *before* **21st May 1929**	12	8	4	2
15/-	25/-	105	**Tup Lamb**	5	3	2	-
15/-	25/-	106	**Ewe** above one shear, **with her Lamb at foot**	10	5	2	-
15/-	25/	107	**Shearling Ewe or Gimmer**	10	5	2	-

Prize Money by Society . . £122

CHEVIOT

Judge: Walter J. Grieve

President's Medal for best Cheviot Sheep

ENTRY FEES *Members*	*ENTRY FEES* *Non-Members*	*CLASS*		*PREMIUMS* *First* £	*PREMIUMS* *Second* £	*PREMIUMS* *Third* £	*PREMIUMS* *Fourth* £
15/-	25/-	108	**Tup** above one shear	12	8	4	2
15/-	25/-	109	**Shearling Tup**	12	8	4	2
15/-	25/-	110	**Tup Lamb**	5	3	2	–
15/-	25/-	111	**Ewe** above one shear, with her **Lamb** at foot	10	5	2	–
15/-	25/-	112	**Shearling Ewe or Gimmer**	10	5	2	–

Prize Money by Society . . £96

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* Formal Declarations must be made at time of entry that the conditions as regards clipping, &c., have been strictly adhered to.

[1] This Cup, along with an endowment of £400, was subscribed for by the Counties of Fife and Kinross in commemoration of the Society's first Show at Cupar-Fife in 1912. This year the Cup is offered for the best Blackface Sheep. The animal winning the Cup must be certified free from hereditary disease. The winner of the Cup shall, before delivery thereof is made to him, give security to the Society that he shall surrender the same to the Society and deliver it at the Society's office when called upon to do so. The winner of the Cup on each occasion will receive a miniature replica in silver as a memento of his winning the Cup.

SHEEP

BORDER LEICESTER

Judge : William Faulder

President's Medal for best Border Leicester Sheep

ENTRY FEES		*CLASS*		*PREMIUMS*			
Members	*Non-Members*			*First*	*Second*	*Third*	*Fourth*
				£	£	£	£
15/-	25/-	113	**Tup** above one shear	12	8	4	2
15/-	25/-	114	**Shearling Tup**	12	8	4	2
15/-	25/-	115	**Tup Lamb**	5	3	2	-
			[1] **Gold Medal** for best Male Animal in the Border Leicester Classes, registered or eligible for registration in the Border Leicester Flock Book. Animals entered as "Extra Stock" not eligible.				
15/-	25/-	116	**Ewe** above one shear	10	5	2	–
15/-	25/-	117	**Shearling Ewe or Gimmer**	10	5	2	–
15/-	25/-	118	**Ewe Lamb**	5	3	2	–
			[1] **Gold Medal** for best Female Animal in the Border Leicester Classes, registered or eligible for registration in the Border Leicester Flock Book. Animals entered as "Extra Stock" not eligible				

PRIZE MONEY BY SOCIETY . . £106

HALF-BRED

Judge : J. R. C. Smith

President's Medal for best pen of Half-Bred Sheep

ENTRY FEES		*CLASS*		*PREMIUMS*			
Members	*Non-Members*			*First*	*Second*	*Third*	*Fourth*
15/-	25/-	119	**Shearling Tup**	10	7	3	–
15/-	25/-	120	**Ewe** above one shear	10	5	2	–
15/-	25/-	121	**Shearling Ewe or Gimmer**	10	5	2	–
15/-	25/-	122	**Three Ewe Lambs**	5	3	2	–

PRIZE MONEY BY SOCIETY . . £64

Given by the Society of Border Leicester Sheep-Breeders.

SHEEP

OXFORD-DOWN

Judge: A. Wyllie

(All sheep to be entered or eligible for entry in the Flock-Book)

President's Medal for best pen of Oxford-Down Sheep

[1] **Scottish Oxford-Down Sheep-Breeders' Challenge Bowl**, value £50, for the best Oxford-Down Animal bred in Scotland, to be won three times by the same owner, but with different sheep, before becoming his property.

Entry Fees: Members	Entry Fees: Non-Members	Class		Premiums: First £	Premiums: Second £	Premiums: Third £
15/-	25/-	123	**Shearling Tup**	8	5	3
15/-	25/-	124	**Shearling Ewe or Gimmer**	8	5	3
15/-	25/-	125	**Tup Lamb**	8	5	3
15/-	25/-	126	**Three Ewe Lambs**	8	5	2

Prize Money by Society . . £42

[1] Contributed Prizes . . 21

SUFFOLK

Judge: A. N. Bocock

(All sheep to be entered or eligible for entry in the Flock-Book)

President's Medal for best pen of Suffolk Sheep

Entry Fees: Members	Entry Fees: Non-Members	Class		Premiums: First £	Premiums: Second £	Premiums: Third £
15/-	25/-	127	**Tup**, one shear and over	8	5	3
15/-	25/-	128	**Shearling Ewe or Gimmer**	8	5	3
15/-	25/-	129	**Tup Lamb**	8	5	3
15/-	25/-	130	**Three Ewe Lambs**	8	5	2

Prize Money by Society . . £48

[2] Contributed Prizes . . 15

SHROPSHIRE

Judge: William Barnet

President's Medal for best Shropshire Sheep

Entry Fees: Members	Entry Fees: Non-Members	Class		Premiums: First £	Premiums: Second £	Premiums: Third £
15/-	25/-	131	**Tup**, any age	6	4	2
15/-	25/-	132	**Ewe or Gimmer**	5	3	2

Prize Money by Society . . £22

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[1] Given by Oxford-Down Sheep-Breeders' Association.

[2] Given by the Suffolk Sheep Society.

SHEEP

DORSET HORN

Judge: Alfred Johnson

President's Medal for best Dorset Horn Sheep

ENTRY FEES Members	ENTRY FEES Non-Members	CLASS		PREMIUMS First £	PREMIUMS Second £	PREMIUMS Third £
15/-	25/-	133	**Tup**, any age	6	4	2
15/-	25/-	134	**Ewe or Gimmer**	5	3	2

Prize Money by Society . . £17

[1] Contributed 5

FAT SHEEP

Judge: J. R. C. Smith

ENTRY FEES Members	ENTRY FEES Non-Members	CLASS		PREMIUMS First £	PREMIUMS Second £	PREMIUMS Third £
15/-	25/-	135	**Three Fat Lambs**, any breed or cross, dropped in the year of the Show	5	3	2
15/-	25/-	136	**Three Fat Lambs**, out of Blackface Ewes, dropped on or after 1st March of the year of the Show .	5	3	2

[Exhibitors of Fat Sheep are requested to state the breed of sire and dam when making their entries: entries in Class 136 must also be accompanied by a certificate certifying date of birth.]

Prize Money by Society . . £20

Prize Money by Society . .	£537
Contributed	41
Cups, Medals, &c.	270
Total Prizes for Sheep . .	**£848**

[See Note as to **EXTRA STOCK**, p. 112.]

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[1] Given by the Dorset Horn Sheep-Breeders' Association.

GOATS

Judge: Mrs Reginald Pease

REGULATIONS FOR GOAT CLASSES.

The animals will be milked dry at 6 o'clock on the evening previous to the opening of the Show, in the presence of, and to the satisfaction of, the Steward or a representative of the Society duly authorised by him.

All exhibits must be registered either in the Herd-Book, Foundation Book, Show Register, or Kid Register of the British Goat Society, in the name of the Exhibitor (the registered number being quoted on the entry form), or, if previously entered or owned by some one other than the exhibitor, a transfer of ownership must be registered with the British Goat Society.

President's Medal for best animal in the Goat Classes

(*All animals must be registered*)

Forteviot Challenge Cup, value £30, offered by the British Goat Society for the best Goat, irrespective of sex or age, entered in either the British Alpine, British Saanen, or British Toggenburg Sections of the Herd-Book.

[1] **Challenge Cup,** value 20 Guineas, for the best Female Goat in the Show.

[2] **Challenge Cup,** value £10, for best Female Anglo-Nubian Goat over two years old, in Milk, entered in the Anglo-Nubian section of the Herd-Book, "Extra Stock" being eligible to compete.

ENTRY FEES				*PREMIUMS*		
Members	*Non-Members*	*CLASS*		*First*	*Second*	*Third*
				£	£	£
5/-	10/-	137	**Male Goat,** any variety, over two years . .	3	2	1
5/-	10/-	138	**Male Goat,** any variety, over one but not exceeding two years	3	2	1
5/-	10/-	139	**Male Kid,** any variety, not exceeding one year .	3	2	1
5/-	10/-	140	**Female Goat,** Toggenburg, British Toggenburg, Saanen, British Saanen, or British Alpine, in Milk	3	2	1
5/-	10/-	141	**Female Goat,** any other variety, in Milk . .	3	2	1
5/-	10/-	142	**Goatling,** any variety, over one but not exceeding two years	3	2	1
5/-	10/-	143	**Female Kid,** any variety, not exceeding one year .	3	2	1

The Competition for Goats is recognised by the British Goat Society, 10 Lloyds Avenue, London, E.C.3, which will give Challenge Certificates (qualifying for a Championship) for the best Male Goat over one year, for the best Female Goat over two years that has borne a kid, and for the best dual purpose Goat over two years that has borne a kid; a Bronze Medal for the best female exhibit in Classes 140, 141, 142, and 143; and a Bronze Medal for the best male exhibit in Classes 137, 138, and 139.

[1] Given by Lord Dewar, London—to be competed for annually.

[2] Given by Mrs S. Macdonald, Garrochty—to be competed for annually.

GOATS

ENTRY FEES				*PREMIUMS*		
Members	*Non-Members*	*CLASS*		*First*	*Second*	*Third*
				£	£	£
5/-	10/-	144	**Milking Competition,** for quality, open to Classes 140 and 141	3	2	1
5/-	10/-	145	**Milking Competition,** for quantity, open to Classes 140 and 141	3	2	1

Regulations for Milking Competition (Classes 144 and 145).

Goats entered for this Competition must be entered in both the Quantity and Quality Classes.

The animals will be milked at 5 P.M. on Tuesday, 23rd July, at an appointed place in the order arranged by the Steward, and the milk of the next twenty-four hours will be taken for the Quality Milking Competition. The hours of milking shall be 8 A.M. and 5 P.M. on Wednesday, 24th July, with an additional milking at 8 A.M. on Thursday for the Quantity Milking Competition.

All Goats must have kidded within twelve months of the first day of the Show.

The prizes will be awarded according to the following scale of points:—

For each pound of milk . . .	1 point.
For each complete 6 days the Goat has been in milk (omitting the first forty days), with a maximum of 5·4 points .	$\frac{1}{16}$ of a point.
For each $\frac{1}{4}$ lb. of fat in the milk . .	5 points.

In cases where the milk contains less than 3 per cent of fat 1 point will be deducted.

In the Quantity Milking Competition points will be awarded for quantity and lactation only.

The period of lactation to be calculated from the date of kidding to the first day of the Show. No prize will be awarded to a Goat giving less than 5½ lbs. of milk per day.

Fractions of lbs. of milk and percentages of fat to be worked out in decimals and added to the total points.

A Certificate giving the last date of kidding, signed by the owner of the Goat exhibited, or his Agent, must in every case be brought to the Steward of Goats as soon as possible after the animal has arrived in the Showyard.

The milk yielded by Goats in the Showyard shall be the property of the Society.

***Note.*—No animal is allowed to compete in more than one Class, except that Goats entered in Classes 140 and 141 may also be entered in Classes 144 and 145.**

Prize Money by Society . . .	£42
Department of Agriculture for Scotland .	12
Cups	61
Total Prizes for Goats .	**£115**

[See Note as to **EXTRA STOCK**, p. 112.]

*PIGS

LARGE WHITE

Judge: John Fillingham

(*All Large White Pigs to be entered or eligible for entry in the Herd-Book of the National Pig-Breeders' Association*)

President's Medal for best Large White Pig

ENTRY FEES		*CLASS*		*PREMIUMS*		
Members	*Non-Members*			*First* £	*Second* £	*Third* £
15/-	25/-	146	**Boar** born before 1928	8	4	2
15/-	25/-	147	**Boar** born in 1928	8	4	2
15/-	25/-	148	**Boar** born in 1929	6	3	1
15/-	25/-	149	**Sow** born before 1928	8	4	2
15/-	25/-	150	**Sow** born in 1928	8	4	2
15/-	25/-	151	**Sow** born in 1929	6	3	1

PRIZE MONEY BY SOCIETY . . £76

MIDDLE WHITE

Judge: James Allsup

(*All Middle White Pigs to be entered or eligible for entry in the Herd-Book of the National Pig-Breeders' Association*)

President's Medal for best Middle White Pig

ENTRY FEES		*CLASS*		*PREMIUMS*		
Members	*Non-Members*			*First* £	*Second* £	*Third* £
15/-	25/-	152	**Boar** born before 1929	8	4	2
15/-	25/-	153	**Boar** born in 1929	6	3	1
15/-	25/-	154	**Sow** born before 1928	8	4	2
15/-	25/-	155	**Sow** born in 1928	8	4	2
15/-	25/-	156	**Sow** born in 1929	6	3	1

PRIZE MONEY BY SOCIETY . . £62

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* See Rule 35.

PIGS

LARGE BLACK

Judge: Harry E. Bastard

President's Medal for best Large Black Pig

ENTRY FEES				*PREMIUMS*		
Members	*Non-Members*	*CLASS*		*First*	*Second*	*Third*
				£	£	£
			[1] **Silver Challenge Cup**, value 12 Guineas, for best Large Black Boar or Sow owned by an Exhibitor resident in Scotland, and to become the property of an Exhibitor winning it twice in succession or three times at intervals.			
			[1] **Silver Medal** for the best Large Black Boar.			
15/-	25/-	157	**Boar** born before 1929	8	4	2
15/-	25/-	158	**Boar** born in 1929	6	3	1
			[1] **Silver Medal** for the best Large Black Sow.			
15/-	25/-	159	**Sow** born before 1928	8	4	2
15/-	25/-	160	**Sow** born in 1928	8	4	2
15/-	25/-	161	**Sow** born in 1929	6	3	1

Prize Money by Society . £44
[1] Contributed Prizes . . 18

LARGE WHITE ULSTER

Judge: Richard Rattray

President's Medal for best Large White Ulster Pig

Members	*Non-Members*	*CLASS*		*First*	*Second*	*Third*
15/-	25/-	162	**Boar** born on or after 1st November 1928 . .	8	4	2
15/-	25/-	163	**Sow** born in 1928	8	4	2
15/-	25/-	164	**Three Breeding Pigs** born on or after 1st January 1929	6	3	1

Prize Money by Society . . £28
[2] Contributed Prizes . . 10

Prize Money by Society . . .	£210 0
Contributed	28 0
Cups, Medals, &c.	12 12
Total Prizes for Pigs . .	£250 12

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[1] Given by Large Black Pig Society.

[2] Given by the Large White Ulster Pig Society.

EXTRA STOCK

(Former Winners and Stock not eligible for Ordinary Classes).

Animals not included in the Classes for Competition may be exhibited as Extra Stock, and may receive Awards as follows: the Silver Medal, the Medium Silver Medal, and the Bronze Medal.

Animals entered as Extra Stock are eligible to compete for the President's Medals, whether former winners of these Medals or not. They are also eligible to compete for Special Prizes where the conditions of these Prizes permit.

While every endeavour will be made to see that former winners are correctly entered in the Catalogue as "Extra Stock," the Society accepts no responsibility for this, it being the duty of Exhibitors to state clearly on the Entry Form the Show at which the animal became disqualified for the Ordinary Classes. If an animal appears in the Catalogue as entered in an Ordinary Class which should appear as "Extra Stock," it cannot thereafter be transferred to the "Extra Stock" Section.

Entry Fees—same as corresponding Classes.

* POULTRY

Judges: W. H. Silvester, Classes 1 to 22, 61 to 72, and 93 to 100; Walter Bradley, Classes 23 to 60; Thomas Fullarton, Classes 73 to 92; H. S. Anthony, Classes 101 to 123.

[1] **Champion Challenge Bowl,** value £50, for the best exhibit in the Poultry Classes.

First Premium—ONE SOVEREIGN; *Second Premium*—TEN SHILLINGS. In each Class in which there are four or more entries a Third Prize of Five Shillings may be awarded, provided there is sufficient merit in the pens. In addition to the Premiums, the Judges may award *one* Very Highly Commended, *one* Highly Commended, and as many Commended tickets in each Class as they consider justified by the number and merit of the entries.

Champion Medals are offered as follows:—

1. Best Cock, any Variety.
2. Best Hen, any Variety.
3. Best Cockerel, any Variety.
4. Best Pullet, any Variety.
5. Best Waterfowl.
6. Best Turkey.

Aged Birds must have been hatched previous to, and Cockerels and Pullets in, the year of the Show.

Entry Fees—Members, 2s. 6d.; Non-Members, 4s.

	Class
LEGHORN—	
White	1. Cock
	2. Hen
	3. Cockerel
	4. Pullet
Exchequer	5. Cock or Cockerel
	6. Hen or Pullet
Any other Colour	7. Cock
	8. Hen
	9. Cockerel
	10. Pullet
MINORCA	11. Cock
	12. Hen
	13. Cockerel
	14. Pullet
HAMBURGH	15. Cock
	16. Hen
	17. Cockerel
	18. Pullet
SCOTCH GREY	19. Cock
	20. Hen
	21. Cockerel
	22. Pullet
PLYMOUTH ROCK—	
Barred	23. Cock
	24. Hen
	25. Cockerel
	26. Pullet
Any other Colour	27. Cock or Cockerel
	28. Hen or Pullet
ORPINGTON—	
Black	29. Cock
	30. Hen
Any other Colour	31. Cock
	32. Hen
Any Colour	33. Cockerel
	34. Pullet
WYANDOTTE—	
Gold or Silver	35. Cock
	36. Hen
	37. Cockerel
	38. Pullet
White	39. Cock
	40. Hen
	41. Cockerel
	42. Pullet
Partridge	43. Cock or Cockerel
	44. Hen or Pullet
Columbian	45. Cock or Cockerel
	46. Hen or Pullet
Any other Colour	47. Cock or Cockerel
	48. Hen or Pullet
RHODE ISLAND RED	49. Cock
	50. Hen
	51. Cockerel
	52. Pullet
SUSSEX—	
Light	53. Cock
	54. Hen
	55. Cockerel
	56. Pullet
Any other Variety	57. Cock
	58. Hen
	59. Cockerel
	60. Pullet
DORKING—	
Coloured	61. Cock
	62. Hen
	63. Cockerel
	64. Pullet

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[1] Given by the Proprietors of 'The Scottish Poultry News,' Aberdeen. The Bowl will become the property of the exhibitor who shall win it three times, not necessarily in succession.

Special Entry Forms for Poultry Classes. See Regulations 66 and 67.

DORKING—*continued*	Class
Silver Grey	65. Cock
	66. Hen
	67. Cockerel
	68. Pullet
SCOTS DUMPY	69. Cock
	70. Hen
	71. Cockerel
	72. Pullet
BARNEVELDER	73. Cock
	74. Hen
	75. Cockerel
	76. Pullet
INDIAN GAME	77. Cock
	78. Hen
	79. Cockerel
	80. Pullet
OLD ENGLISH GAME	81. Cock
	82. Hen
	83. Cockerel
	84. Pullet
BANTAM—	
Game—Old English	85. Cock
	86. Hen
Game—Modern	87. Cock
	88 Hen
Other than Game	89. Cock
	90. Hen
Any Variety	91. Cockerel
	92. Pullet
ANY OTHER RECOGNISED BREED OF POULTRY	93. Cock
	94. Hen
	95. Cockerel
	96. Pullet
PURE-BRED FOWLS FOR LAYING PURPOSES—	
Any heavy breed	97. Hen or Pullet

PURE BRED FOWLS—*continued*	Class
Any light breed	98. Hen or Pullet
CROSS-BRED FOWLS FOR LAYING PURPOSES	99. Hen
	100. Pullet
DUCKS—	
Aylesbury	101. Drake
	102. Duck
	103. Drake (young)
	104. Duck (young)
Orpington	105. Drake
	106. Duck
	107. Drake (young)
	108. Duck (young)
Indian Runner	109. Drake
	110. Duck
Any other Variety	111. Drake
	112. Duck
GEESE	113. Gander
	114. Goose
TURKEYS	115. Cock
	116. Hen
TABLE POULTRY—	
(*a*) TABLE FOWLS—	
Any pure Breed	117. Cockerel
	118. Pair of Pullets
Game-Cross	119. Cockerel
	120. Pair of Pullets
Any other Cross	121. Cockerel
	122. Pair of Pullets
(*b*) DUCKLINGS FOR TABLE PURPOSES—	
Any Breed or Cross	123. Pair of Ducklings

AMOUNT OF POULTRY PREMIUMS, £215, 5s.

Special Entry Forms for Poultry Classes.

FUR-PRODUCING RABBITS

(*To be judged at* 10 A.M. *on Wednesday*, 24*th July*)

Judge : George A. Townsend

REGULATIONS.

Rabbits must be brought to the Showyard between 5 P.M. and 9 P.M. on Tuesday, the first day of the Show. No lot will be admitted without an Admission Order. Pens, food, and attendance will be found by the Society.

Rabbits may be penned on Tuesday evening and removed at the close of the Show by Exhibitors themselves or their representatives. In the event of neither the Exhibitor nor an authorised representative of the Exhibitor being present to pen or remove Rabbits, they will be penned and removed by men hired and paid by the Society, but this will be done on the understanding that the men are hired to do the work on behalf of Exhibitors, and solely at their risk, and that the Society will be in no way responsible for expenses incurred or loss of or injury to Exhibits by errors or accidents in penning, despatching, or conveying Exhibits.

On the Wednesday, the second day of the Show, the Rabbit Shed will be closed to the public during the Judging. On the last day of the Show the Rabbit Shed will be closed to the public at 4 P.M.; at 5 P.M. Exhibitors or their representatives will be admitted to the Shed to remove Exhibits, provided the Exhibitor has, *not later than* 11 A.M. *on the last day of the Show*, given written notice to the Secretary to the effect that the Exhibitor or the Exhibitor's representative will attend at the Rabbit Shed at 5 P.M. to remove the Rabbits.

Champion Silver Medal for best exhibit in the Rabbit Classes.

First Premium—FIFTEEN SHILLINGS; *Second Premium*—TEN SHILLINGS; *Third Premium*—FIVE SHILLINGS. In each Class in which there are less than four entries the Third Prize of Five Shillings will not be awarded. In addition to the Premiums, the Judges may award *one* Very Highly Commended, *one* Highly Commended, and as many Commended tickets in each Class as they consider justified by the number and merit of the entries.

Class.
1. Blue Beveren, Buck.
2. Blue Beveren, Doe.
3. Blue Beveren, Buck or Doe, under 5 months at first day of Show.
4. Chinchilla, Buck.
5. Chinchilla, Doe.
6. Chinchilla, Buck or Doe, under 5 months at first day of Show.
7. Havana, Buck or Doe.
8. Lilac, Buck or Doe.
9. Angora, Buck or Doe.
10. Any other variety of Fur-producing Rabbit, Buck or Doe.

Entry Fee—2s. 6d. each rabbit.

PRIZE MONEY BY SOCIETY £15

Special Entry Forms for Rabbit Classes.

HONEY, &c.

Judge: John Anderson, M.A., B.Sc.

OPEN CLASSES

Entry Fees—2s. 6d. each.

Class.		Premiums. 1st.	2nd.	3rd.
1.	Collection of Appliances suitable for a beginner's outfit for Bee-keeping. A card naming all the articles, along with the price at which they will be supplied for one year from date, to be fixed to the exhibit	20/-	15/-	10/-
2.	Best and most complete Frame Hive for general use, with any improvements. Unpainted	20/-	15/-	10/-
3.	Best and most complete Hive. Unpainted. Price not to exceed 35/-	20/-	15/-	10/-
4.	Six Sections of Comb Honey, excluding Heather Honey	20/-	15/-	10/-
5.	Six Sections of Heather Honey	20/-	15/-	10/-
6.	Six Jars of Run or Extracted Light-coloured Honey, approximate weight 6 lb.	20/-	15/-	10/-
7.	Six Jars of Run or Extracted Medium or Dark-coloured Honey, excluding Heather Honey, approximate weight 6 lb.	20/-	15/-	10/-
8.	Six Jars of pressed Heather Honey in liquid form, approximate weight 6 lb.	20/-	15/-	10/-
9.	Six Jars of Granulated Honey, approximate weight 6 lb.	20/-	15/-	10/-
10.	Two shallow Frames of Comb Honey for extracting purposes	20/-	15/-	10/-
11.	Products made with the aid of Honey. (Recipe to be attached, which will be treated as confidential)	20/-	15/-	10/-
12.	Best display of Honey in any form suitable for a shop window in space 4 feet by 4 feet. Weight of honey not to exceed 40 lb.	60/-	30/-	20/-
13.	Best exhibit of not less than 1 lb. of Wax in any form	20/-	15/-	10/-
14.	Best exhibit of not less than 1 lb. of Wax made into shapes for retail trade and over-counter trade. Convenience in packing to be taken into consideration	20/-	15/-	10/-
15.	Observatory Hive with Queen and Bees—two or more frames	50/-	30/-	20/-
16.	Observatory Hive with Queen and Bees—one frame, no super	40/-	30/-	15/-

(Confined to Scottish Exhibitors.)

17.	One Standard Frame of Comb Honey for extracting purposes	20/-	15/-	10/-
18.	Six Sections of Comb Honey, excluding Heather Honey	20/-	15/-	10/-
19.	Six Sections of Heather Honey	30/-	20/-	10/-
20.	Six Jars of Run or Extracted Medium or Dark-coloured Honey, excluding Heather Honey, approximate weight 6 lb.	30/-	20/-	10/-
21.	Six Jars of Run or Extracted Light-coloured Honey, approximate weight 6 lb.	30/-	20/-	10/-

Silver and Bronze Medals will be awarded by the Scottish Bee-Keepers' Association to the First and Second winners of the greatest number of points in Classes 4-21, calculated on the following basis: 1st prize, 3 points; 2nd prize, 2 points; 3rd prize, 1 point.

Championship Cup, value £5, 5s.—This cup has been gifted by the Rev. John Beveridge, M.B.E., B.D., Gartmore, and will be held for one year by the winner of the Silver Medal, ultimately becoming the property of the first competitor to score 100 points.

PRIZE MONEY BY SOCIETY	£47, 0s. 0d.
CONTRIBUTED BY SCOTTISH BEE-KEEPERS' ASSOCIATION	£10, 10s. 0d.
CHAMPIONSHIP CUP	£5, 5s. 0d.

Special Entry Forms for Appliances and Honey.

Should there be in any Class three or less than three entries, the value of the first prize will be reduced to that of the second, the second to that of the third, and no third prize will be awarded.

RULES AND REGULATIONS.

1. All exhibits must be despatched in time to be delivered at the Showyard not later than 6 P.M. on Monday, the day before the opening of the Show. According to the railway regulations, exhibitors will require to pay return carriage and cartage when despatching. Return carriage-paid labels will be supplied by the Secretary, and must be addressed for the return journey, and have numbers of Classes on same. Non-compliance with this regulation will mean that the exhibit will be left in the Showyard. **Boxes containing hives, jars, or sections must be *screwed* and not nailed, and the hives, bottles, and sections so placed that they can be lifted out and replaced without disturbing the packing.**

2. The number of the exhibit will be sent by the Secretary (as entered on the card), and must be placed on every exhibit and on each detachable part of exhibit—viz., on every jar of Extracted Honey. The number must be gummed on the side of the jar at the foot and not on the bottom or cap. No goods will be allowed to be staged unless this rule is complied with.

3. No card, trade mark, or name of the exhibitor may be placed upon any part of an exhibit. Every article exhibited must be the property of the exhibitor, and all honey must have been gathered in the natural way within Great Britain, Northern Ireland, and Irish Free State, by bees the property of the exhibitor.

4. Comb Honey must be glazed on both sides, to protect the honey from injury. If paper edging is used, it must be of such a width as to leave 3½ inches by 3½ inches of glass clear of the lace paper, or in any other neat way capable of easy removal by the Judges, in small boxes glazed on both sides, such as supplied by dealers.

5. All Run, Extracted, and Granulated Honey must be shown in the usual mercantile Glass Jars holding approximately 1 lb., except in Class 12.

6. No exhibitor shall be allowed to take more than one prize in any one class.

7. The Judge shall be empowered to withhold prizes in case of insufficient merit.

8. Should there be in any class three or less than three entries, the value of the first prize will be reduced to that of the second, the second to that of the third, and no third prize will be awarded.

9. The Judge will commence his inspection at 11 A.M. on Tuesday, and the Bee Shed will be closed to the public during the judging.

10. Exhibits of Honey may be placed in their positions in the shed before the opening and removed at the close of the Show by exhibitors themselves or their representatives. In the event of neither the exhibitor nor a person with written authority from the exhibitor being present to place or remove the exhibits, they will be placed and removed by men hired and paid by the Society, but this will be done on the understanding that the men are hired to do the work on behalf of the exhibitors, and solely at their risk, and that the Society will be in no way responsible for expenses incurred or loss of or injury to exhibits by errors or accidents in placing, despatching, or conveying exhibits. In the case of exhibits which are not removed by 5.30 P.M. on the closing day of the Show, the Society will hold itself at liberty to hand them over to the railway companies for despatch to the respective exhibitors.

11. No lot can be removed from the yard till 4 P.M. on Friday, the last day of the Show.

12. The Society undertakes no responsibility for the receipt or despatch of exhibits, nor for any injury exhibits may sustain during the Show or otherwise.

13. **Railway delivery charges from station to Showyard and back to be paid by exhibitor. See p. 88.**

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*DAIRY PRODUCE

Judge: William Swan

No Exhibitor to show more than one lot in any Class

Entry Fees—Members, 5s.; Non-Members, 7s. 6d.

	Premiums.				
	1st.	2nd.	3rd.	4th.	5th.
Class	£	£	£	£	£
1. Powdered Butter, not less than 3 lb.	4	2	1	–	–
2. Fresh Butter, three 1-lb. rolls	4	2	1	–	–
3. Cheddar Cheese, 56 lb. and upwards	9	5	3	2	1
4. Cheese, 14 lb. and under	5	3	2	1	–
Total	£45				

Special Entry Forms for Dairy Produce.

* See Regulations 75 and 76.

Railway delivery charges from station to Showyard and back to be paid by exhibitor. See p. 88.

WOOL

Judge: Herbert C. Redman

THREE *Fleeces in each Entry. Each fleece must be shown entire. Entry Fee*, 5s.

PURE BREED CLASSES

Class		Premiums. 1st. £	2nd. £	3rd. £
	*BLACKFACE.			
1.	*Ewe*	3	2	1
2.	*Hogg*	3	2	1
	CHEVIOT.			
3.	*Ewe*	3	2	1
4.	*Hogg*	3	2	1
	BORDER LEICESTER.			
5.	*Ewe*	3	2	1
6.	*Hogg*	3	2	1
	HALF-BRED.			
7.	*Ewe*	3	2	1
8.	*Hogg*	3	2	1
	OXFORD DOWN.			
9.	*Ewe*	3	2	1
10.	*Hogg*	3	2	1
	SUFFOLK.			
11.	*Ewe*	3	2	1
12.	*Hogg*	3	2	1
	DORSET HORN.			
13.	*Ewe*	3	2	1
14.	*Hogg*	3	2	1
	† SHETLAND.			
15.	*Ewe*	3	2	1
16.	*Hogg*	3	2	1
				£96

TOTAL PRIZE MONEY FOR WOOL, £96.

Cheviot, Border Leicester, and Half-Bred Fleeces must be shown washed, and Blackface and Shetland Fleeces unwashed. All Fleeces must be shorn in the year of the Show from sheep bred and reared on, or regular stock of, the exhibitor's farm.

Railway delivery charges to and from Showyard must be paid by the exhibitor.

Special Entry Forms for Wool Classes.

* Blackface Ewe Fleeces shall be not less than 4½ lb., and Hogg Fleeces not less than 6 lb. in weight.

† An exhibit of Shetland Wool may comprise fleeces of one or more colours, but each fleece must be self-coloured.

Railway delivery charges from station to Showyard and back to be paid by Exhibitor. See p. 88.

RURAL INDUSTRIES

Judges: Miss Bruce, Classes 1, 2, 3, 4, 5, 6, 15, 16, and 20; J. Mountford, Classes 7, 19, and 23; Miss Chart and Miss Annie Morton, Classes 8, 9, 10, 11, 13, 17, 18, 21, 22, 24, and 25; Mrs Balfour Graham, Class 12; Miss Annie Firth, Class 14.

Entry Fees, 2s. 6d. each article.

OPEN CLASSES.

SHETLAND KNITTING.

Exhibits to be made from Shetland Wool.

Class.		Premiums. 1st.	2nd.	3rd.	
1.	Fine Lace Goods (separate entry for each article)	£3	£2	£1	
2.	Jumper, Sports Coat, Cardigan, or Waistcoat—one or more colours	3	2	1	
3.	Jumper, Sports Coat, Cardigan, or Waistcoat—all over Fair Isle	3	2	1	
4.	Exhibits other than above (separate entry for each article)	2	1	10/-	
	TWEEDS.				
5.	Harris or other Tweed—Hand-spun, Hand-woven, and Vegetable-dyed	3	2	1	
6.	Tweed—Mill-spun, Hand-woven	3	2	1	
	MISCELLANEOUS.				
7.	Home-made Floor Rug (wool)	3	2	1	
8.	Specimen of Embroidery—white (to be exhibited unwashed)	3	2	1	
9.	Specimen of Embroidery—coloured	3	2	1	
10.	Leather Gloves	2	1	10/-	
11.	Specimen of Leather Work other than Gloves	2	1	10/-	
12.	„ Furcraft	2	1	10/-	
13.	„ Hand-painted Pottery	2	1	10/-	
14.	„ Basket Work (Raffia not eligible)	2	1	10/-	
15.	Best collection of Vegetable-dyed Wools	2	1	10/-	
16.	Home-spun Yarn—2-3 cuts	2	1	10/-	
					£76 0

CONFINED CLASSES.

Open to Women's Rural Institutes and Members thereof in the whole of Scotland.

		Premiums. 1st.	2nd.	3rd.	
17.	Embroidered Bag—Petit Point included	£3	£2	£1	
18.	Specimen of Filet-lace	3	2	1	
					£12 0

Confined to Women's Rural Institutes and Members thereof in the Central Area of Scottish Women's Rural Institutes.

		Premiums. 1st.	2nd.	3rd.
19.	Floor Rug—made from old material	20/-	10/-	5/-
20.	Socks—4-ply fingering	15/-	10/-	5/-
21.	Raffia work—on canvas	15/-	10/-	5/-
22.	Applique	20/-	10/-	5/-

RURAL INDUSTRIES—*continued.*

		Premiums.			
		1st.	2nd.	3rd.	
23.	Carded Wool Quilt—home made . . .	30/-	20/-	10/-	
24.	Specimen of Leather Work—soft . . .	15/-	10/-	5/-	
25.	Tea Cloth—with crochet border . . .	30/-	20/-	10/-	
	Special Prizes to the Institutes winning the largest number of prizes in Classes 19 to 25 inclusive. First Prize to count six points, Second Prize five points, Third Prize four points, V.H.C. three points, H.C. two points, and C. one point . . .	£3	£2	£1	
					£20 0

PRIZE MONEY BY SOCIETY £76 0

CONTRIBUTED BY THE CENTRAL COUNCIL OF SCOTTISH WOMEN'S RURAL INSTITUTES FOR THE CONFINED CLASSES . . £32 0

NOTE.—(*a*) No exhibit may be entered in more than one Class.

(*b*) An exhibit which has been awarded a First Prize at a Show of this Society cannot again be entered for competition in the same class.

REGULATIONS.

1. The Competition, except where otherwise stated, is open to competitors from all parts of Great Britain, Northern Ireland, and Irish Free State. Societies or Institutes, as well as individuals, shall be allowed to compete. An exhibit which has won a First Prize at a Show of this Society cannot again be entered for competition in the same class.

2. Every exhibit must be the work either of the Exhibitor or of a member of the exhibiting Society or Institute.

3. An entry fee of 2s. 6d. for each exhibit is payable at the time of entry.

4. Exhibits will be received in the Showyard not later than 8 P.M. on Monday, the day before the opening of the Show. Judging will commence at 9.30 A.M. on Tuesday. The section will be closed to the public during the judging. Exhibits shall not be removed till after the close of the Show.

5. Exhibits shall be entirely at the risk of exhibitors, who shall be solely responsible for delivery and removal of their own exhibits. In the event of neither the exhibitor nor a person with written authority from the exhibitor being present to place or remove exhibits, these will be placed and removed by men hired and paid by the Society; but this will be done on the understanding that the men are hired to do the work on behalf of the exhibitors and solely at their risk, and that the Society will be in no way responsible for expenses incurred or loss of or injury to exhibits by errors or accidents in placing, despatching, or conveying exhibits. A receipt signed by the exhibitor, on a form to be issued by the Secretary, must be delivered before any exhibit is handed over to the exhibitor or his or her representative.

6. Exhibitors shall be allowed to place with their exhibits a notice indicating where (in the Showyard or elsewhere) similar articles may be purchased.

7. Exhibits must not be sent to the Society's Office previous to date of Show. Labels, &c., will be posted to Exhibitors about fourteen days prior to the Show.

8. **Railway delivery charges from station to Showyard and back to be paid by exhibitor. See p. 88.**

Special Entry Forms for Rural Industries Section.

HORSE SHOEING

Judges : George C. Inglis, M.R.C.V.S. ; James Hall ; William Stephen.

Open to Shoeing-Smiths from any part of Great Britain, Northern Ireland, and Irish Free State.

Horses provided for this Competition cannot be entered in any other Class.

THURSDAY, 25TH JULY.

Class 1.—FARM HORSES (Open Class).

1st Prize, £5 and Gold Watch.*
2nd Prize, £5 and Canteen of Cutlery.†
3rd Prize, £5 and Gold Medal.‡
4th Prize, £4 and Gold Medal.§
5th Prize, £3.
6th Prize, £2.
7th Prize, £2.
8th Prize, £1.
9th Prize, £1.

FRIDAY, 26TH JULY.

Class 2.—FARM HORSES (Juniors under Twenty-five Years of Age).

1st Prize, £5 and Clock.**
2nd Prize, £3 and Canteen of Cutlery.†
3rd Prize, £2 and Gold Medal.‡
4th Prize, £1.

* Gold Watch given by Messrs William Martin, Sons, & Co., Coatbridge.
** Clock given by the Scottish Iron and Steel Co., Ltd., Glasgow.
† Canteens of Cutlery given by Messrs Neilson & Cleland, Ltd., Coatbridge.
‡ Gold Medals given by the Mustad Nail Company.
§ Gold Medal given by Capewell Horse Nail Company.

PRIZE MONEY BY SOCIETY	£24
CLOCK AND £10 BY THE SCOTTISH IRON & STEEL CO., LTD., GLASGOW	£15
GOLD WATCH AND £5 BY MESSRS WILLIAM MARTIN, SONS, & CO., COATBRIDGE	£10
CUTLERY BY MESSRS NEILSON & CLELAND, LTD., COATBRIDGE	£8
GOLD MEDALS BY MUSTAD NAIL CO.	£4
GOLD MEDAL BY CAPEWELL HORSE NAIL CO.	£2

1. Entries must be made with the Secretary not later than 30th May. Entry Fee, 2s. 6d. for each Class. Entry Forms may be had on application.

2. The Competition will take place in the Showyard, and will be decided by points, time being taken into consideration. Each Competitor must make and fix one fore and one hind shoe, having previously taken off the old shoes. The shoes must be fullered, with low calkins, and with toe-pieces on hind shoes only. The use of files and wire brushes is not permitted. Each Competitor must bring his own tools, nails, and a striker. The striker will not be allowed to touch the horse's hoof. The local Blacksmiths' and Farriers' Association will provide forges and anvils. The horses to be shod will be provided by the Association. Forges and horses will be balloted for.

3. Any Competitor who does not attend at the Horse-Shoeing Stance and answer to his name **half an hour before he is due to compete** will be debarred from competing.

4. The Competitor and his striker will be admitted to the Yard free of charge on the day of Competition on presentation of tickets which will be sent to the Competitor for the purpose.

The Dundyvan horse-shoe iron to be used in the Open Class, and the Waverley horse-shoe iron to be used in the Junior Class, will be supplied by Messrs Neilson & Cleland, Ltd., Coatbridge, who will also provide the necessary smithy coal.

Special Entry Forms for Horse-Shoeing Classes.

LIVE STOCK JUDGING COMPETITION.

1. The Society will hold a Live Stock Judging Competition on Thursday, 25th July, commencing at 10.30 A.M.

2. The Competition shall be open to all persons not exceeding 25 years of age at the date of the Competition.

3. Teams from Agricultural Colleges or from Young Farmers' Clubs in Scotland shall be allowed to compete. The members of these teams shall also enter as individual Competitors. Five members shall form a team.

4. Entries must be lodged with the Secretary of the Highland and Agricultural Society not later than 10 A.M. on **Thursday, 20th June.** An entry fee of 2s. 6d. shall be paid by each Competitor. Entries of teams must be made in the same way, but no additional fee shall be charged for a Team over and above the fee of 2s. 6d. for each individual member.

5. The Stock to be judged shall consist of—

(*a*) Cattle (three classes)	Shorthorn. Aberdeen-Angus. British Friesian.
(*b*) Horses (two classes)	Clydesdales.
(*c*) Sheep (three classes)	Blackface. Cheviot. Border Leicester.

There will be four animals in each class. The animals to be judged shall be chosen by the Society's Stewards. The Society reserves the right to modify the nature of the classes should difficulty arise in finding suitable material amongst the animals exhibited at the Show.

6. In Judging, breed type shall be taken into account. All stock shall be considered free from acquired blemishes or unsoundness. The Competitors shall judge in groups, and ten minutes shall be allowed for the judging of each class.

7. Competitors are forbidden to discuss the Stock with each other, or with any other person, until the conclusion of the whole Competition.

8. The method of awarding points shall be decided by the Directors of the Society, and their decision in all matters relating to the Competition shall be final.

9. Prizes shall be awarded as follows :—

Individual Competition	£5, £4, £3, £2, £1.
Team Competition—	
1st	£10 and 5 Medium Silver Medals.
2nd	£5 and 5 Medium Bronze Medals.
Special Prize for College team placed highest in competition . .	£5.

[1] **'Glasgow Herald' Challenge Cup**, value £50, to be awarded each year to the winning team in the Inter-College Contests.

[1] **Gold Medal** to be awarded to the highest individual scorer, irrespective of whether the winner is or is not a College Entrant.

The Society reserves the right to reduce the number of prizes in the event of there being less than twenty Competitors in the individual Competition and less than three teams in the team Competition.

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[1] Given by Messrs George Outram & Co., Ltd., Glasgow.

ABSTRACT OF PREMIUMS.

GIVEN BY THE SOCIETY.

Cattle	£1294	0	0
Horses	945	8	0
Jumping Competitions	179	0	0
Sheep	537	0	0
Goats	42	0	0
Pigs	210	0	0
Poultry	215	5	0
Fur-Producing Rabbits	15	0	0
Honey, &c.	47	0	0
Dairy Produce	45	0	0
Wool	96	0	0
Rural Industries	76	0	0
Horse Shoeing	24	0	0
Stock Judging Competition	35	0	0
Medals to Breeders, &c.	30	0	0
Forestry [1]	40	0	0
	£3830	13	0

CONTRIBUTED PRIZES, CUPS, &c.

Champion Medals	30	0	0

CATTLE.

*The late Mr William Duthie, Collynie, Tarves—Silver Cup	£150	0	0			
*Mr Emilio R. Casares, jun., London—Cup	50	0	0			
The Shorthorn Society (and 2 Medals)	40	0	0			
Tweeddale Gold Medal	25	0	0			
*Mr W. Gilchrist Macbeth—Silver Cup	50	0	0			
*The late Sir George Macpherson Grant, Bart.—Silver Cup	50	0	0			
*The late Sir John Macpherson Grant, Bart.—Silver Cup	50	0	0			
*Mr Falconer L. Wallace—Silver Cup	50	0	0			
Aberdeen-Angus Cattle Society—Gold Medal	10	0	0			
*Galloway Cattle Society—Dr Gillespie Memorial Trophy	50	0	0			
*Mrs Brown, Kirkbrex, Glasgow—Knockbrex Challenge Cup	50	0	0			
*Highland Cattle Society of Scotland—Silver Cups	89	5	0			
*Renfrewshire Perpetual Gold Challenge Cup	250	0	0			
*Cowhill Champion Cup	30	0	0			
Ayrshire Cattle Herd-Book Society	20	0	0			
Messrs Brown & Polson, Ltd.	20	0	0			
The Hon. T. G. P. Corbett	5	0	0			
Mr Alexander Munro	5	0	0			
Mr W. P. Gilmour	5	0	0			
British Friesian Cattle Society	64	0	0			
*Lady Rachel Workman MacRobert—Champion Bell	52	10	0			
*Lt.-Colonel Charles Brook—Kinmount Challenge Cup	50	0	0			
Red Poll Cattle Society	20	0	0			
				1185	15	0

HORSES.

*Paisley Perpetual Gold Challenge Cup	£300	0	0			
*Clydesdale Horse Society—Cawdor Challenge Cups	105	0	0			
"William Taylor" Memorial Committee	10	0	0			
Shire Horse Society	43	12	0			
Hunters' Improvement and National Light Horse Breeding Society—Gold Medal	10	0	0			
Department of Agriculture for Scotland	40	0	0			
National Pony Society	10	0	0			
The Highland Pony Society	10	0	0			
A past President of the Shetland Pony Stud-Book Society—Silver Cup	10	0	0			
"Four Lovers of the Breed" (Shetland Ponies)	10	0	0			
Shetland Pony Stud-Book Society (Medal).						
*Glasgow Challenge Cup	50	0	0			
				598	12	0
Carry forward				£5645	0	0

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[1] Grant to Royal Scottish Arboricultural Society for Forestry Section.

* Challenge Prizes.

ABSTRACT OF PREMIUMS—*continued*

Brought forward		£5645 0 0

SHEEP.

*Fife and Kinross Perpetual Gold Challenge Cup	£200 0 0	
Society of Border Leicester Sheep-Breeders—Gold Medals	20 0 0	
*Challenge Bowl for Oxford-Down Sheep	50 0 0	
Oxford-Down Sheep-Breeders' Association	21 0 0	
Suffolk Sheep Society	15 0 0	
Dorset Horn Sheep-Breeders' Association	5 0 0	
		311 0 0

GOATS.

Department of Agriculture for Scotland	£12 0 0	
*British Goat Society—Forteviot Challenge Cup	30 0 0	
*Lord Dewar—Silver Cup	21 0 0	
*Mrs S. Macdonald, Garrochty—Silver Cup	10 0 0	
		73 0 0

PIGS.

*Large Black Pig Society—Silver Cup	£12 12 0	
Large Black Pig Society (and 2 Medals)	18 0 0	
Large White Ulster Pig Society	10 0 0	
		40 12 0

POULTRY.

*Proprietors of 'The Scottish Poultry News,' Aberdeen—Challenge Bowl		50 0 0

HONEY.

The Scottish Bee-Keepers' Association	£10 10 0	
*Rev. John Beveridge, M.B.E., Championship Cup	5 5 0	
		15 15 0

RURAL INDUSTRIES.

Central Council of Scottish Women's Rural Institutes		32 0 0

HORSE SHOEING.

The Scottish Iron & Steel Co., Ltd., Glasgow (Clock and £10)	£15 0 0	
Messrs W. Martin, Sons, & Co., Coatbridge (Gold Watch and £5)	10 0 0	
Messrs Neilson & Cleland, Limited, Coatbridge (Cutlery)	8 0 0	
Mustad Nail Co. (2 Gold Medals)	4 0 0	
Capewell Horse Nail Co. (Gold Medal)	2 0 0	
		39 0 0

STOCK JUDGING COMPETITION.

*Messrs George Outram & Co., Ltd., Glasgow—'Glasgow Herald' Challenge Cup (and Gold Medal)		50 0 0
		£6256 7 0

* Challenge Prizes.

JOHN STIRTON, *Secretary.*

3 GEORGE IV. BRIDGE,
EDINBURGH, *March* 1929.

SILVER MEDALS FOR NEW OR IMPROVED IMPLEMENTS.

See Regulations on page 84.

FORESTRY EXHIBITION.

For information as to above, apply to the Secretary, Royal Scottish Arboricultural Society, 8 Rutland Square, Edinburgh

WOOL DEMONSTRATIONS.

Arrangements are being made for Demonstrations on Wool, to be held in the Wool Shed on Wednesday, Thursday, and Friday, 24th, 25th, and 26th July.

The Society's Show for 1930 will be held at Dumfries.

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